

Silencers

from the Home Workshop



by
Bill Holmes

Copyright © 1980 by Bill Holmes

Drawings by Lynna Brewer

REPRINTED BY PERMISSION

Other Books by Bill Holmes

Home Workshop Guns for Defense and Resistance
Volume One – The Submachine Gun

Home Workshop Guns for Defense and Resistance
Volume Two – The Handgun

Bill Holmes is perhaps the best maker of firearms and accessories from the ground up. Don't be intimidated by the machinery shown in this work. In his two other works he shows many improvisations and alternatives to the more sophisticated shop machinery. Actually, with his two other books, HOME WORKSHOP GUNS FOR DEFENSE AND RESISTANCE, you can learn machining with the simplest of tools and machinery affordable by anyone interested in the craft.

Both books retail for \$10.00 each, postpaid.

Send to: Paladin Press

P.O. Box 1307

Boulder, CO

80306

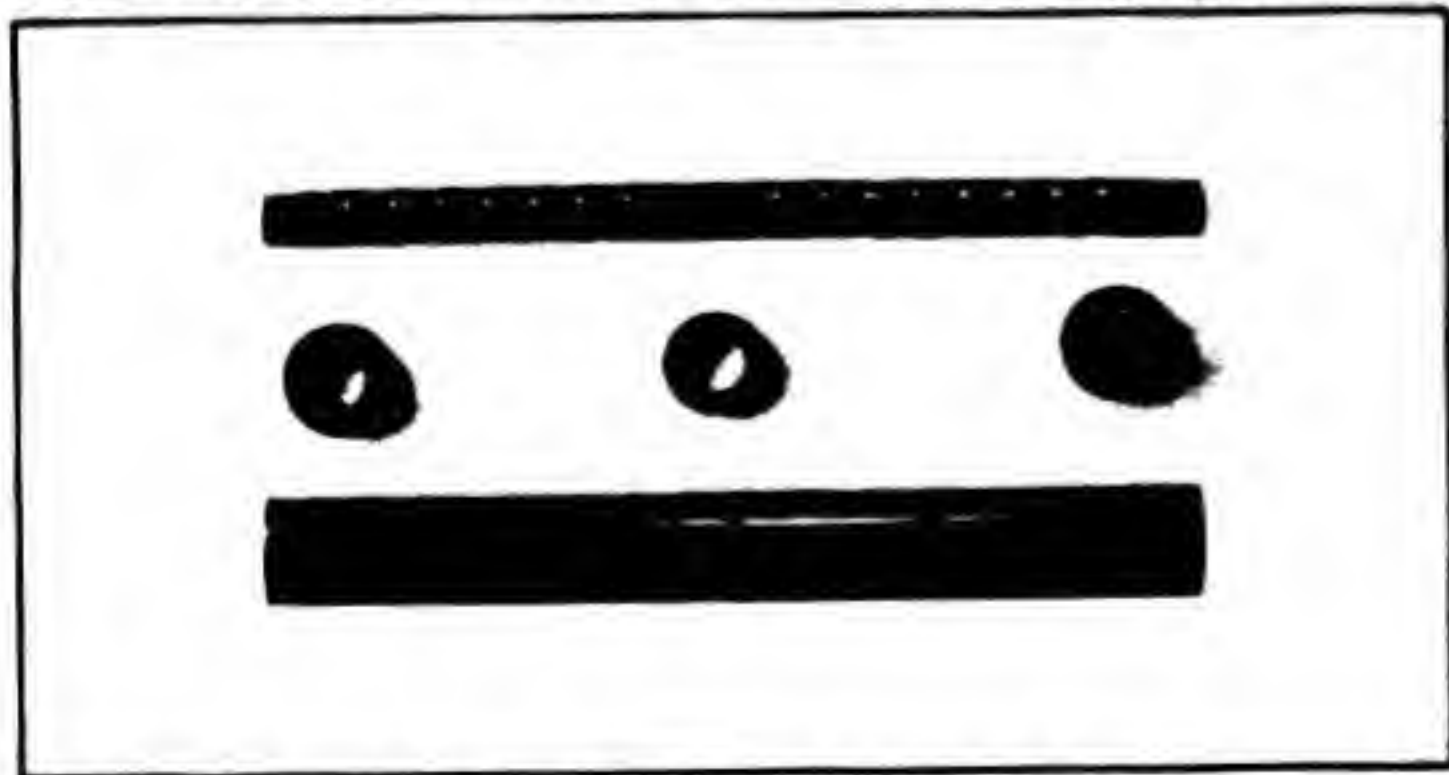
Silencers

I

Back several weeks ago when an acquaintance of mine, who is a would-be gun expert and professes to know considerably more about the subject than I do (he probably does), found out that I was getting ready to put this book together, he immediately informed me that such units are no longer referred to as "silencers." The term, "sound suppressor" is now the proper name for such an item and, according to him, no modern firearms student who knows what he is doing would refer to such a noise reducer by any other name. Very well, I am old fashioned and don't know what I am doing, but it will still be a silencer in this book.

Regardless of whether it is called silencer, sound suppressor, sound modifier, sound moderator, or just plain muffler, it is good for just two things. First of all, if you are caught in possession of one, it will almost certainly get you a lengthy stay in a Federal prison or a healthy fine or likely, both. The only other thing a silencer is actually suited for is to kill some one at a distance without making a lot of noise.

They do not have any practical use as a hunting or target weapon; so regardless of who may tell you that he or she wants a silencer on his or her .22 rifle so that he can hunt squirrels without disturbing his neighbors or so that he can target practice quietly, don't be taken in. He either believes that you are a fool or else he is one. There are also any number of "cowboys" or "psuedo gangsters" to



Component parts of Pistol Silencer consisting of: top—Sleeve, left center—barrel coupling, center—center bushing, right center—end cap, bottom—outer sleeve

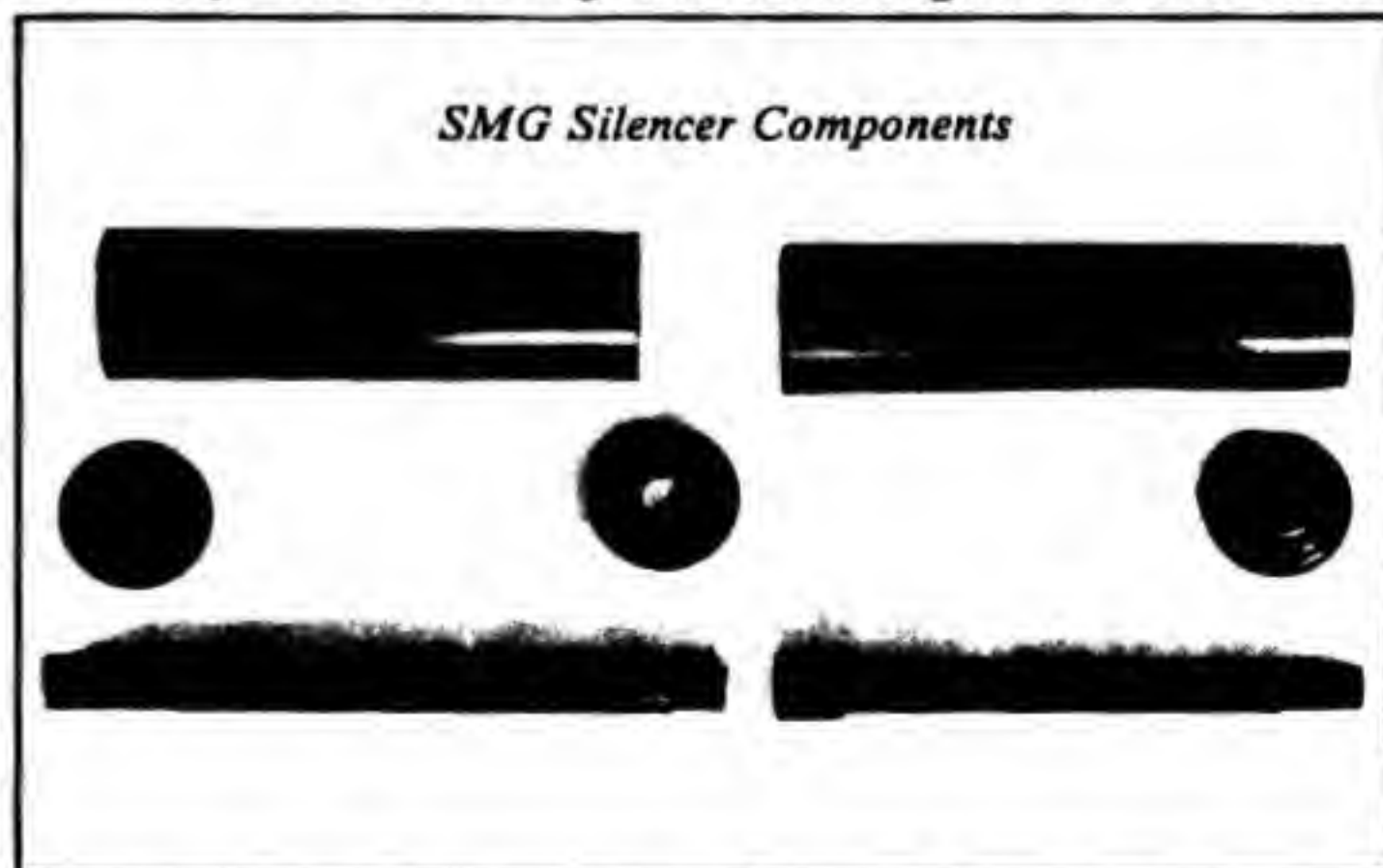
whom such a device holds considerable appeal. They desire to possess such an item simply because it is illegal and they think they are getting away with something. Don't fool with any of the above. If they express a desire

for such devices, insist that they build it themselves; because if you help them and they are caught with it, you will get into trouble, too, just as surely as the sun comes up in the East.

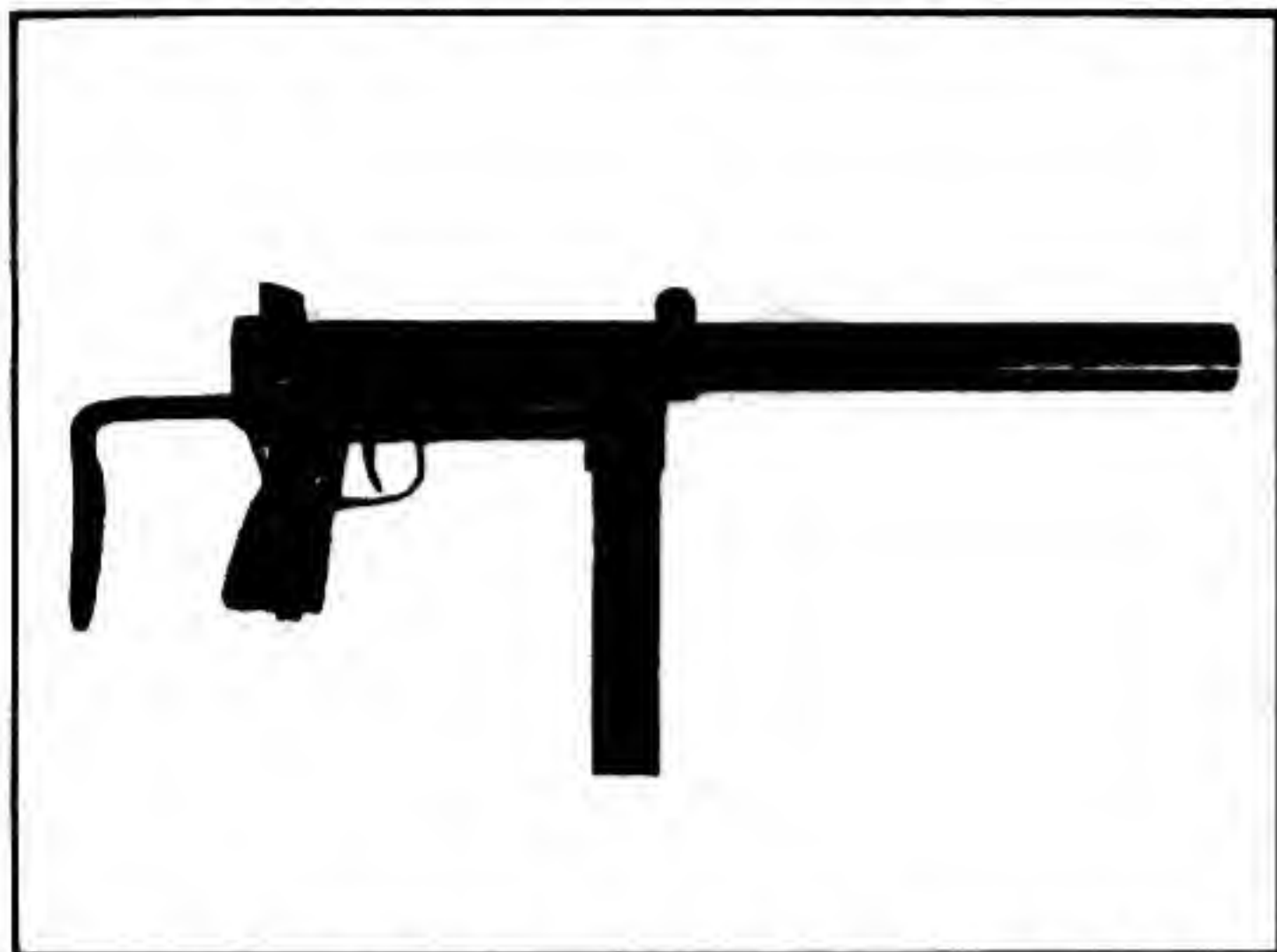
I still believe that the day will come when a person's very existence may depend upon whether or not he has a weapon to defend himself and resist an enemy. These books of mine are meant to show you a way to create a suitable weapon for these purposes if and when such a time does come. Then, it won't make much difference whether or not such a weapon is legal. The people on the opposite side will probably kill you if they catch you anyway. This book, then, will purport to show a way (notice I said "a" way—not "the" way) to build a satisfactory silencer using tools and materials readily available. I will attempt to show how to build one for the submachine gun described in Volume One of Home Workshop Guns for Defense and Resistance and one for the semi-automatic pistol shown in Volume Two of the series. These designs can be adapted to many other firearms simply by making suitable barrel adapters.

Incidentally, I am afraid several people have the wrong idea about what I am trying to do in these books. My primary purpose is to show methods of manufacture and ways that the average man can make the various parts in his home workshop.

The firearms designs are simply there to show a way to build such a weapon that can be modified, and probably improved on, in any number of ways. If you desire to change the designs, in any way, feel free to do so. However, please don't write me or call me and ask me to redesign them for you; and don't, for Heaven's sake, tell me that you are building one of these guns and ask me to



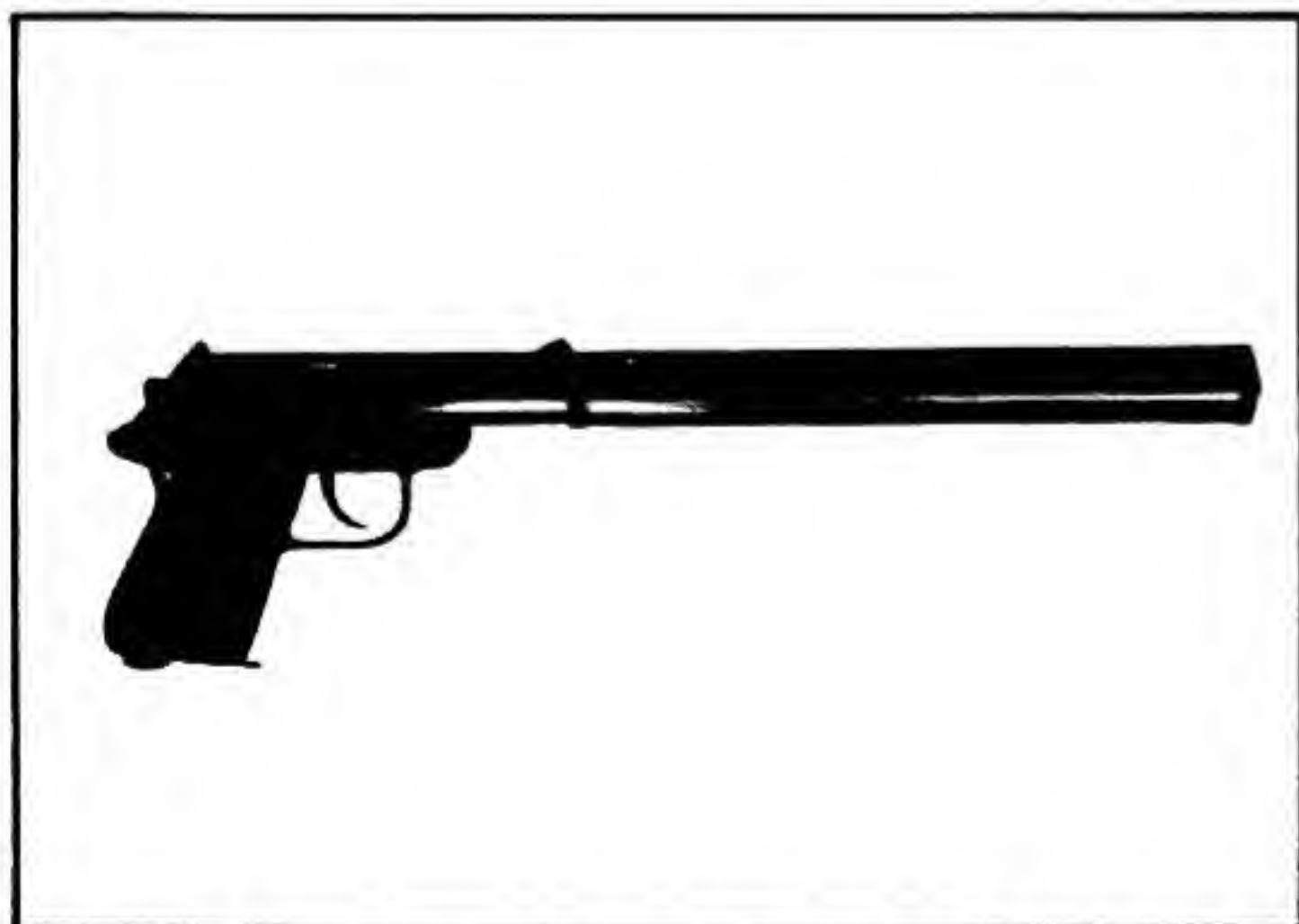
SMG Silencer Components
Top—outer tubes, Left center—barrel bushing, Center—coupling, Right center—muzzle cap, Lower left—barrel, Lower right—sleeve screen and insulation rolls not shown.



Home Workshop SMG with Silencer Attached

help you. If I did, it is possible, and probable, that I (and you) could be charged with conspiring to violate the Federal Firearms Laws. So if you ask me for help in these areas and I don't answer back, it is not because I am too cheap to buy a stamp or unwilling to take the time. Quite the contrary, I simply want to avoid any legal hassle and I have a strong aversion to jail; so please, don't get us both in trouble.

Contrary to what some people may believe, I am not an anarchist nor a clandestine arms maker. Rather, I am but a simple country boy with barely enough sense to read and write. About ninety per cent of my working time is spent building and modifying target shotguns. The rest is spent on experimenting with firearms designs and I do not have either the time or inclination to build illegal weapons. I have a family to support and I could not do a very good job of it in jail.

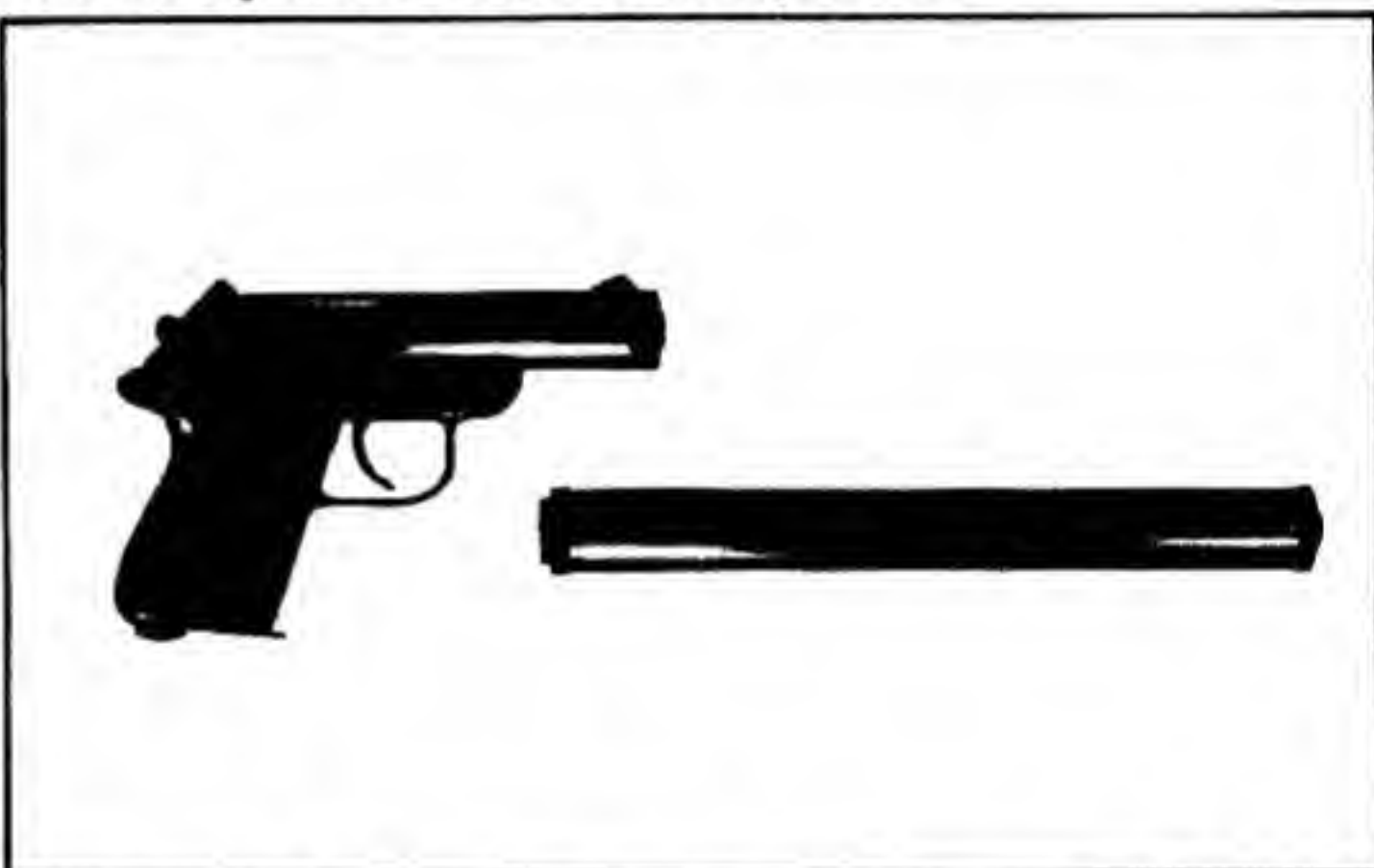


The Home Workshop Silencer Installed on the Home Workshop Pistol

II

Whatever name you choose to call it by, the silencer works about the same way an automobile engine muffler does. Both have expansion chambers to allow the gasses to lose energy and some means of absorbing or slowing down the gasses which delays and spreads out the escape of these gasses somewhat. Thus, the sharp crack that is present without the silencer in place is reduced or altered, depending on the efficiency of the unit used.

Contrary to what you may have seen on television or in the movies, silencers are long, bulky objects and not suited for use on revolvers due to the gas (and noise) leakage from the gap between the cylinder and barrel. Neither are they well suited to high-velocity cartridges since the ballistic crack of the bullet traveling at a velocity higher than the speed of sound is still present.



The Home Workshop Pistol with silencer unattached. To attach, simply remove muzzle cap and replace with silencer.

The most suitable weapon for such an installation would be manually operated, closed breech gun firing a bullet slower than the speed of sound. If an automatic or semi-automatic weapon is used, noise from the moving action parts as well as escaping gas from the opening breech will make enough noise to considerably impair the efficiency of the silencer as such. Therefore, some means should be used to lock the breech shut for each shot and the action cycled manually even when using self-opening weapons.

The designs shown here are about like most of the others, simply a series of sleeves, baffles, and absorbent materials enclosed in a tube with an opening for the barrel at one end and an exit hole for the bullet at the other. The clearance between the sleeve and the bullet should be as small as possible to hinder the flow of the gasses and prevent their rapid escape.

Needless to say, the opening for the bullet's passage

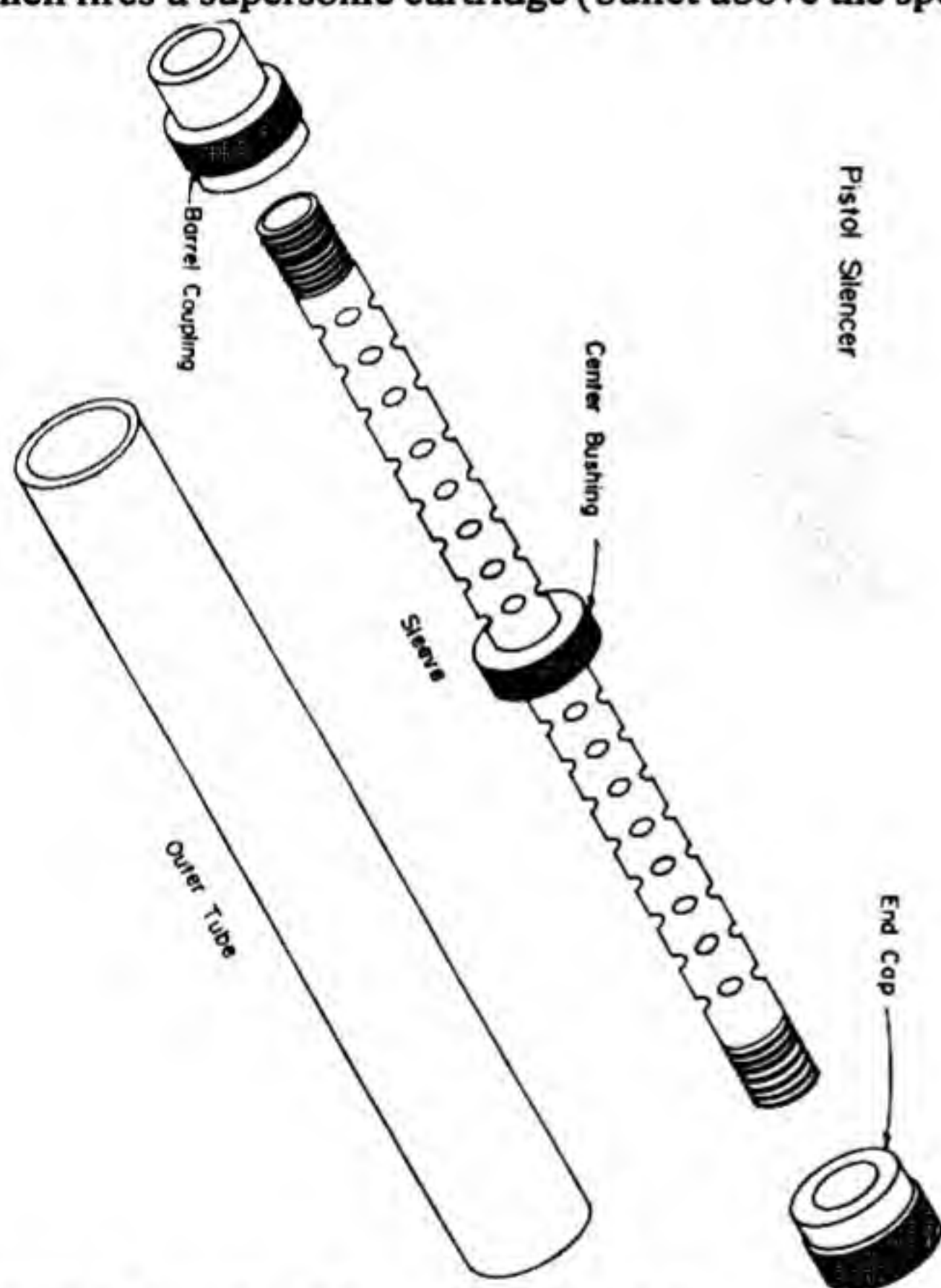
must be parallel to, and concentric with, the bore, proper, otherwise, you may wind up with bullets coming out the sides of the silencer housing.

While I have shown rolled screen wire as the absorbent material in the expansion chambers of these designs, it is possible to use such material as steel wool or fiberglass insulation with equal effect, although it won't last as long. Discs of screen wire could be used in the forward end instead of the rolled fiberglass insulation with equal or better efficiency. It takes a lot of time and effort to cut and stack them into the unit, however, and the screen discs won't last a great deal longer.

If these devices are meant to be used on a firearm which fires a supersonic cartridge (bullet above the speed

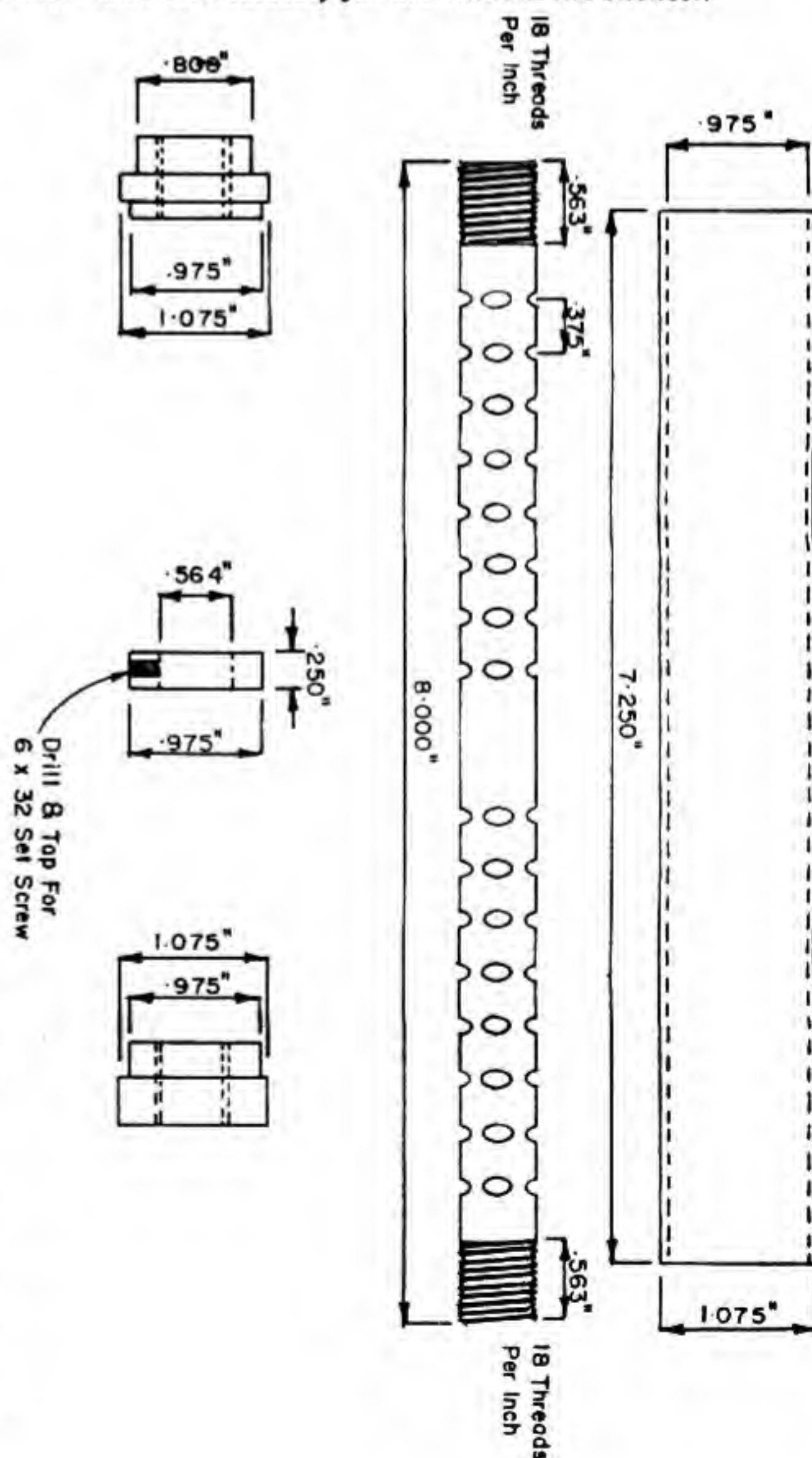


SMG with silencer unattached. Since the barrel must be ported (vented) and is incorporated into the silencer assembly, a separate barrel would be necessary for use without the silencer.

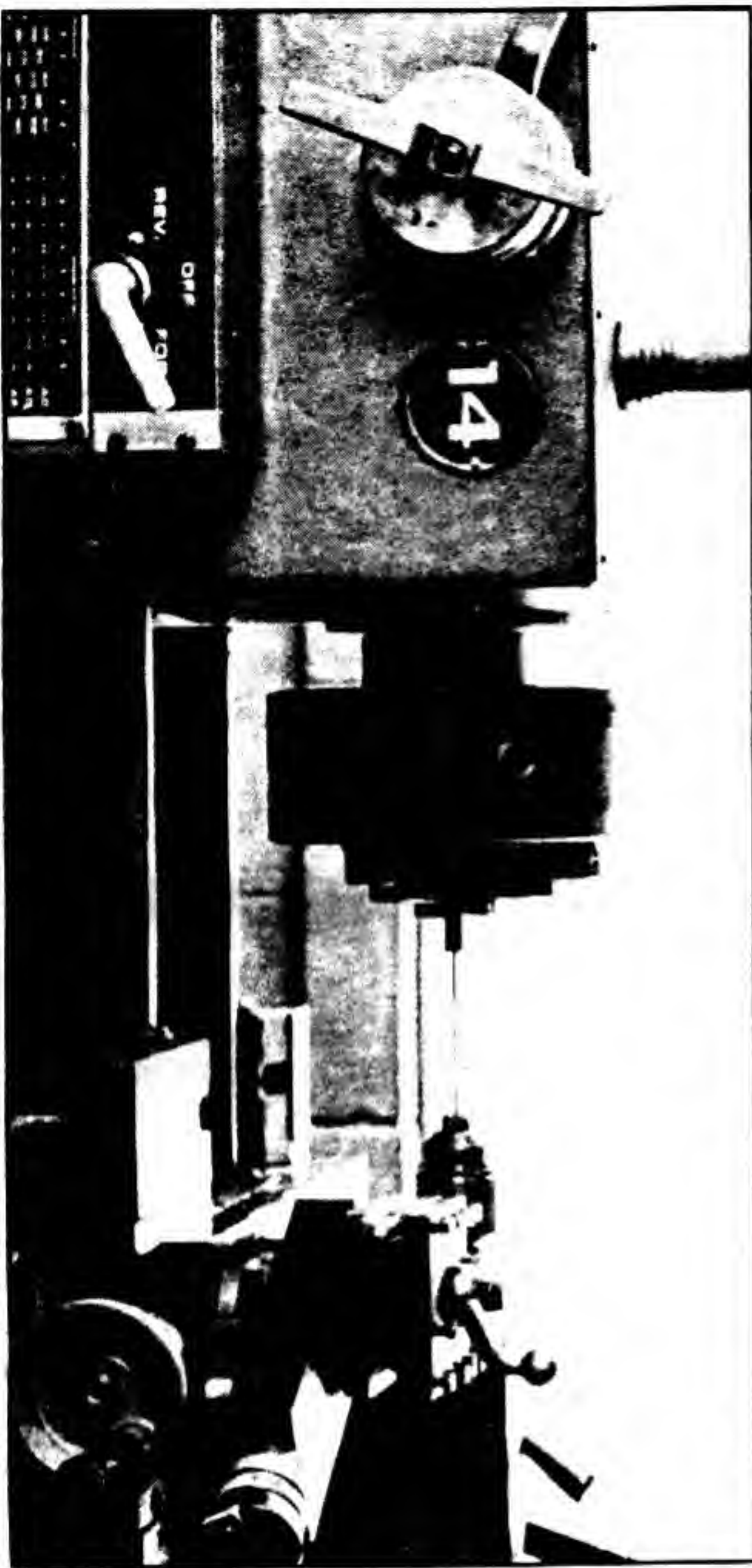


of sound) then it will be necessary to drill ports or holes in the barrel beginning slightly forward of the chamber which will allow enough gas to bleed off into the expansion chamber, thereby reducing the efficiency of the gasses and slowing the bullet to a subsonic velocity.

A sturdy barrel coupling or mounting ring is essential to proper operation. This should be made to fit tightly around the barrel and threaded and screwed on or pressed and pinned in place. The designs shown here utilize threads to secure it. However, many installations would be satisfactory pressed on and pinned. If the coupling hole is made

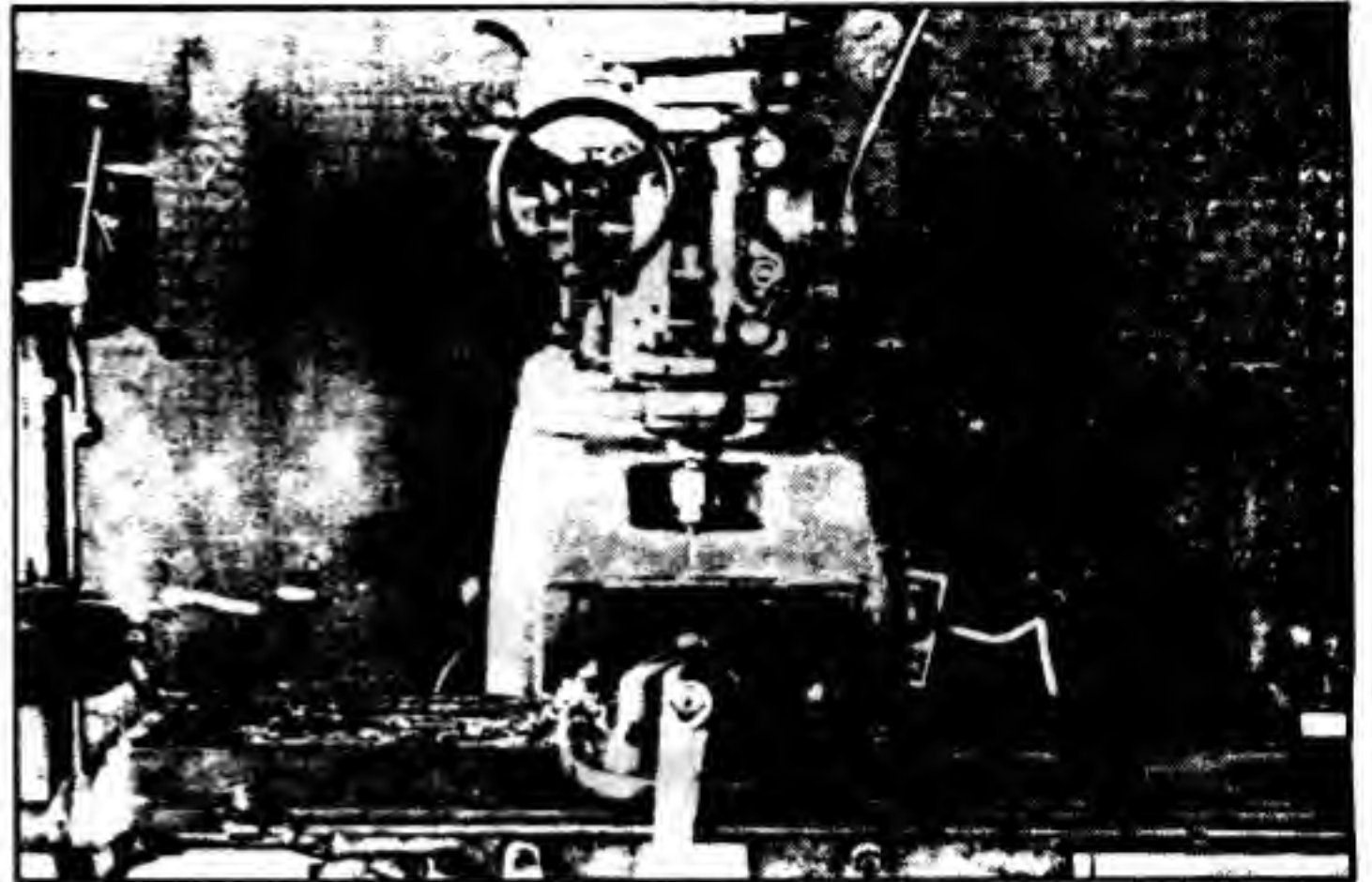


My own Clausing lathe set up to ream sleeve. This machine has 14" swing, 48" between centers, and has 1 1/2" hole through headstock. Adequate for most gun work.



approximately .005" smaller than the outer barrel diameter and the barrel placed in a freezer overnight and the coupling heated to about 400 degrees F just before pressing it in place, a tight enough fit will result that with a cross pin added will never come loose.

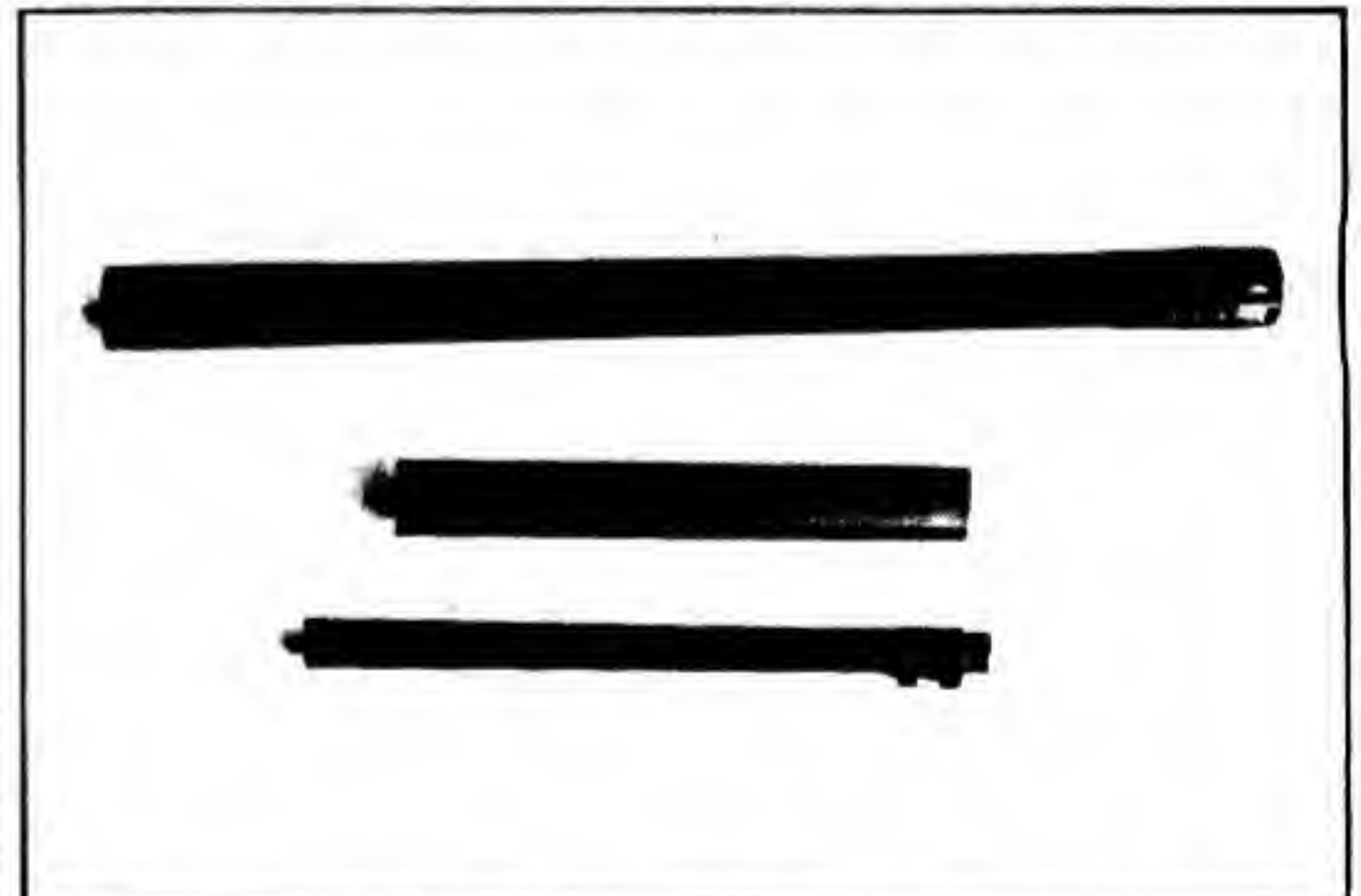
The barrel coupling for my semi-automatic pistol is built to the same dimensions as the barrel muzzle cap, which it replaces, except that it must be made longer and the forward end is a larger diameter to accommodate the rear end of the silencer body. Probably the easiest and cheapest source of material would be an automobile rear axle, which can usually be obtained from salvage yards at



My own Vertical Milling Machine, set up to drill vent holes in silencer sleeve. Naturally, the machine has some chips and shavings on it since I use it every day. With a machine such as this, together with a good lathe and some welding and heat treating equipment, almost anything that it is possible to make from metal can be built provided that the operator is capable of it.

comparatively small cost.

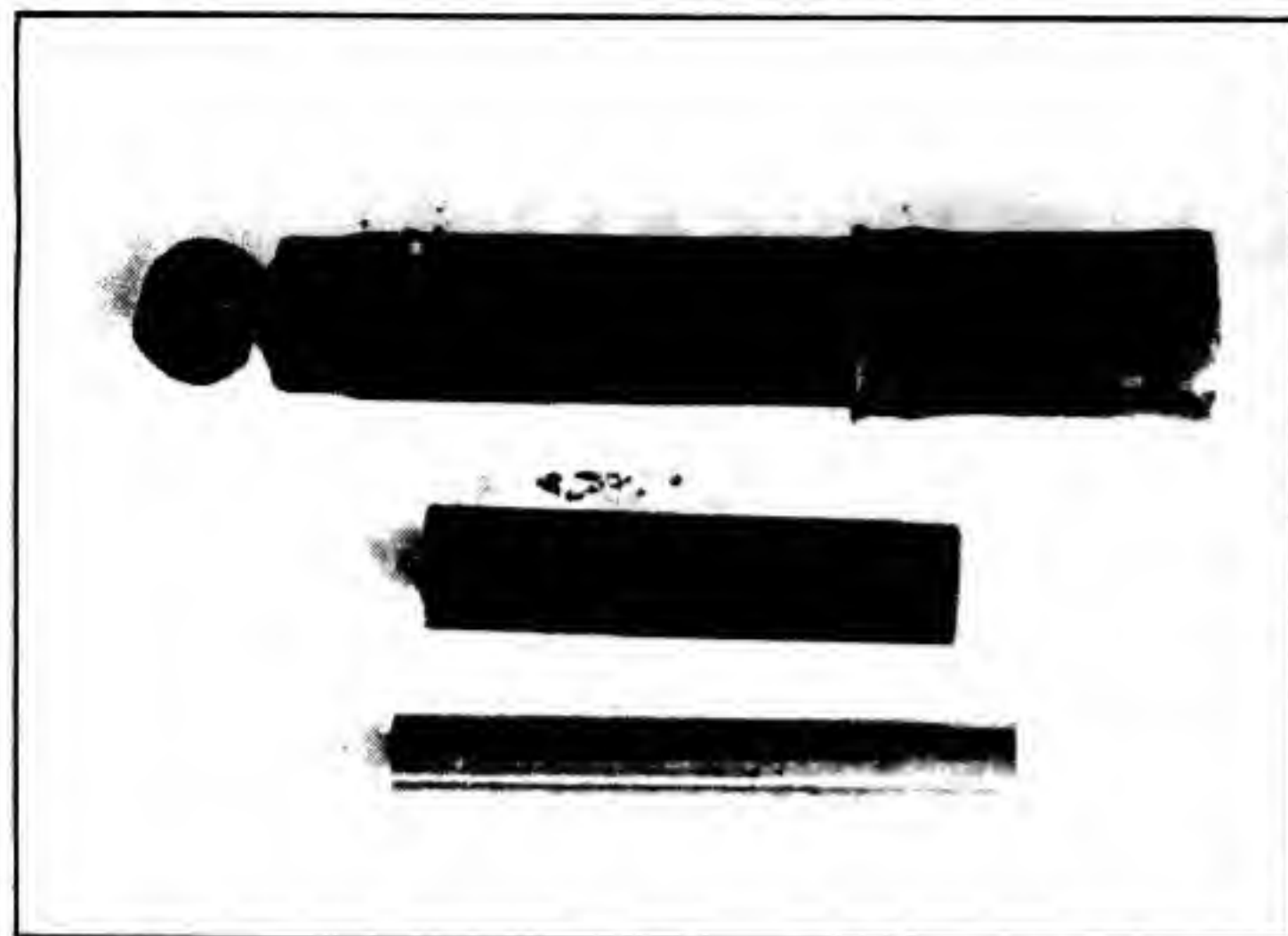
The barrel coupling, center coupling, and the end cap can all be bored and turned to the correct outside diameters as shown in the drawing after which they are cut apart, the ends faced square, and the center holes threaded as required. The measurements given in the drawings are appropriate only if the same size outer tubes as the ones I used are available. These dimensions must be changed as required to accommodate whatever size tube material is



All the material required to construct a silencer, except for screen and insulation. A section of automobile rear axle, shock absorber tubing, and a section of discarded military rifle barrel.

available to you. The thread specifications can also be modified to your requirements.

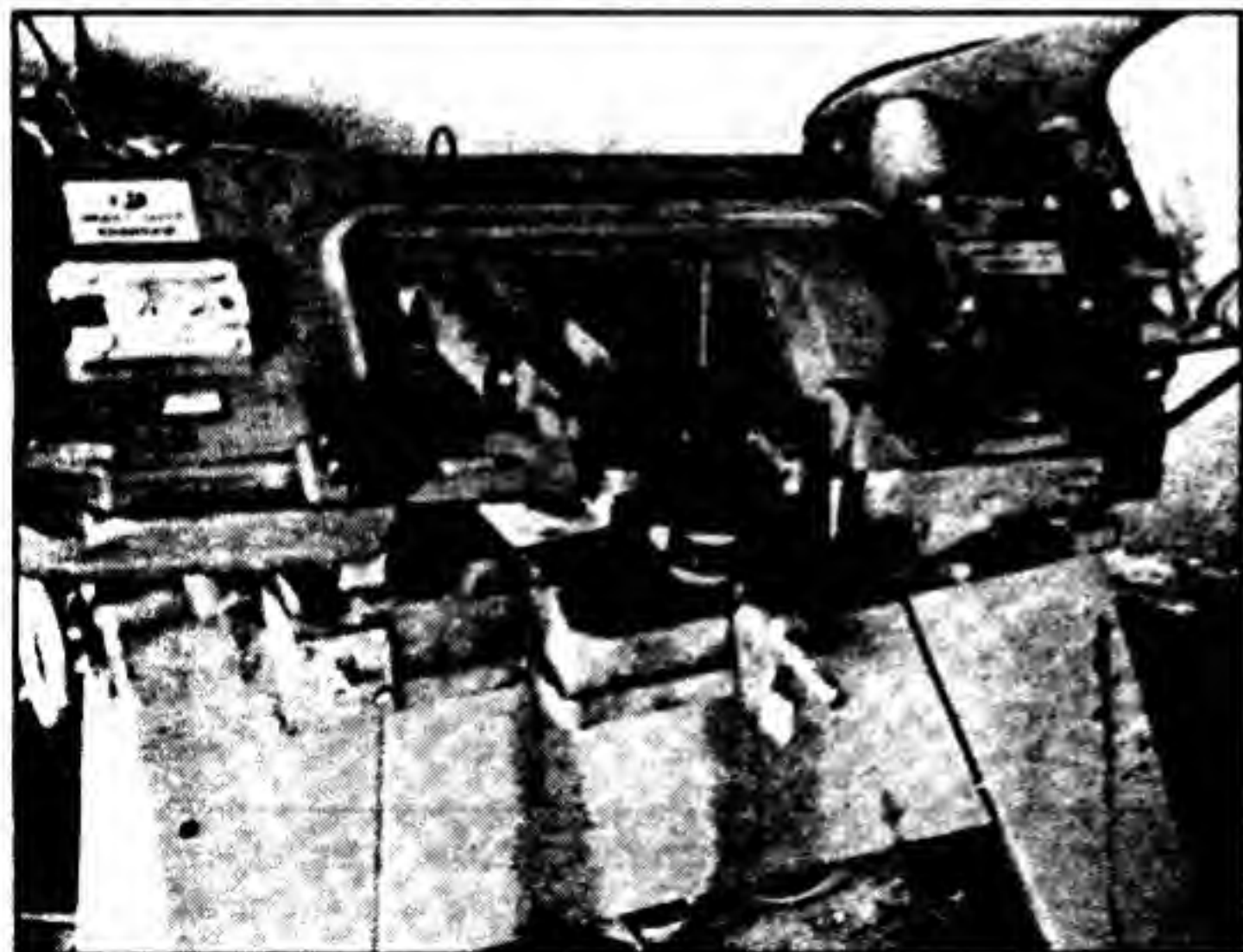
A sleeve approximately 8" long is turned and threaded on each end. One end will screw into the outer end of the barrel coupling. The end cap screws onto the other end, the flanged portions supporting and securing the outer



Tubing for silencer bodies can be obtained from discarded automobile shock absorbers.

tube in place.

This sleeve should be bored, reamed, and lapped to an inside diameter slightly larger than the bullet diameter. A section of discarded rifle barrel can be utilized here. A .30 caliber 8 mm barrel can be reamed to .358-.360 for the .380 caliber. Hand and chucking reamers are available from machine tool supply houses at modest cost which, when fitted with an extension long enough to reach from one end of the bore to the other, will ream the inside to the proper dimension which will be some two to five thousandths of an inch larger than the bullet diameter.



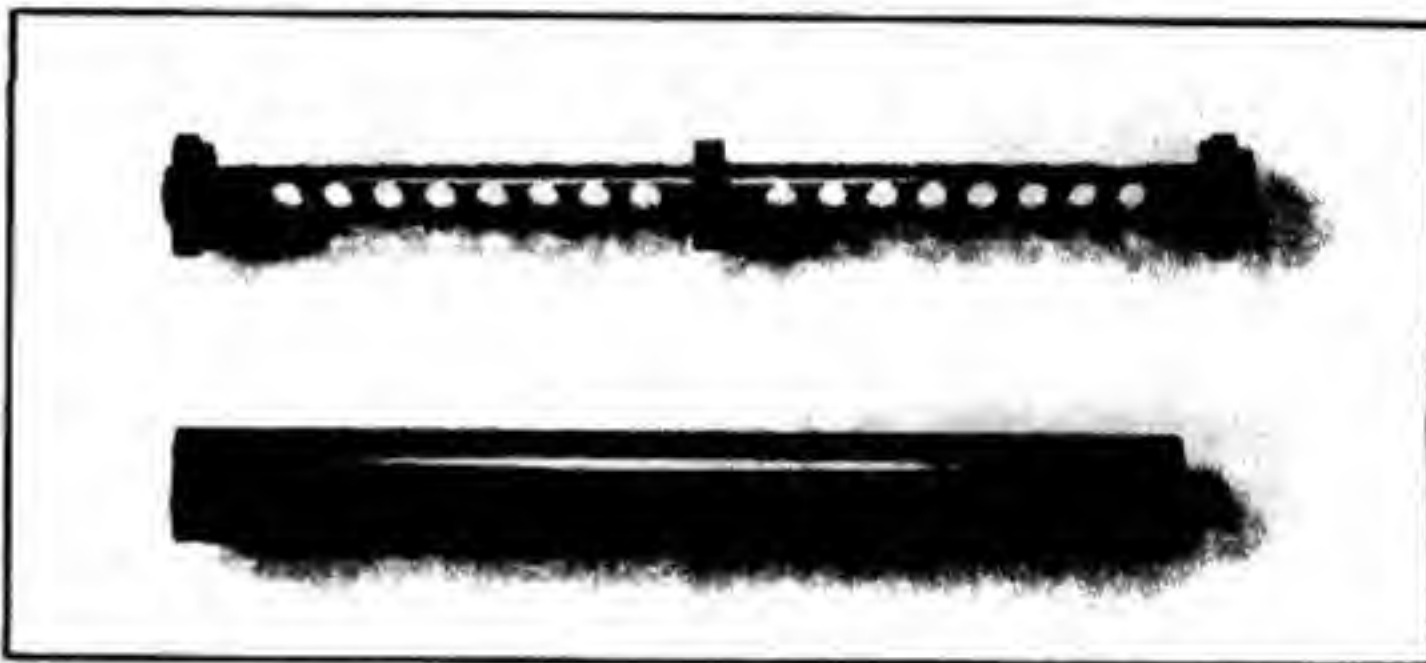
Sawing a shock apart to obtain tubing for the silencer body.

A sleeve for the .32 ACP caliber can be made from any barrel of .30 caliber or less. In this instance, the finished inside diameter should be .312" to .316".

The .22 caliber sleeve can be made from discarded .22 caliber barrel stock by reaming to an inside diameter of

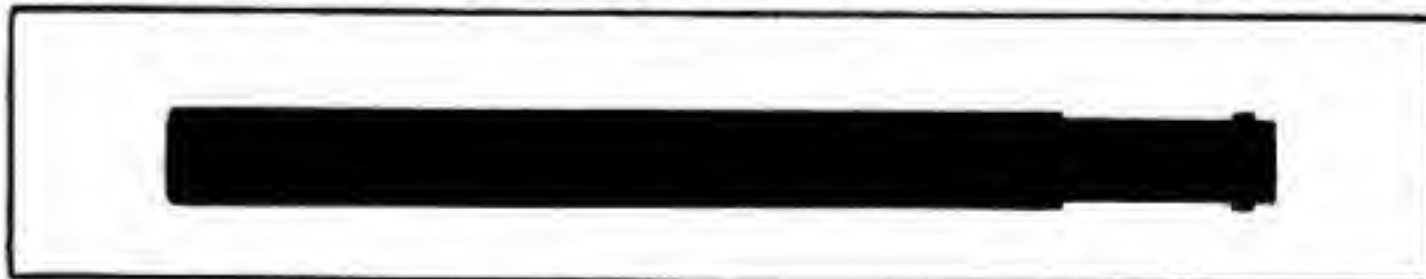
.225" to .229".

Before the final reaming and lapping operations are performed on the sleeve, four parallel rows of vent holes should be drilled along the axis of the bore. These allow gas to vent into the absorbent material surrounding the sleeve which, in turn, deadens and muffles the sound. These holes should be evenly spaced around the circumference of the bore in four rows spaced 90 degrees apart with nine holes spaced .375" ($\frac{3}{8}$ ") center to center between the barrel coupling and center coupling and four more rows of eight holes each between the center coupling and muzzle cap. These holes should be .1875" to .200" in diameter for the .22 caliber silencer and can be .250" to .300" for the .32 or .380. If these holes are drilled before the final inside diameter of the sleeve is reamed and lapped, any burrs thrown up on the inside surfaces will be removed by the final reaming.



Sleeve with barrel coupling, center bushing, and end cap in place, shown with outer tube underneath.

Drilling these vent holes, perpendicular to the bore, evenly spaced, and in a straight line is best done in a vertical milling machine. The next best alternative would be holding the sleeve in a lathe milling attachment and feeding it into the drill, turning in the lathe chuck. Lacking either of these, a drillpress or hand drill may be used provided that the hole locations are properly center punched and started with center drills. This procedure is described in detail in Volume One of the Home Workshop Guns for Defense and Resistance.



Silencer with outer body partly assembled showing screen roll in position.

The outer tube can be made from various types of tubing, pipe, etc., the only requirements being that it is fairly stiff and consistently round for its entire length. Automobile shock absorber bodies contain material well

suited to this application and usually service stations and garages that install shocks on automobiles are happy to give away the worn shocks that they have removed, just to get rid of them. The inside cylinder on the one I used for this installation measured 1.075" in outside diameter and .975" inside diameter which means it has a wall thickness of .050". This cylinder was cut to a length of 7.750" and then ends squared in the lathe, thus creating a satisfactory outside sleeve for the silencer with a minimum amount of expense and labor. As previously mentioned, the outer and inner diameters of such cylinders salvaged from shock absorbers varies considerably and the diameters of the barrel coupling, center coupling, and end cap must be modified from the dimensions shown in the drawings to match the diameters of whatever cylinder of tube that you come up with.



Sleeve with screen roll and insulation in place

The parts should now be blued or finished in whatever fashion that you desire. Hot nitrate bluing is described in Volume One of Home Workshop Guns for Defense and Resistance and instructions on how to apply a rust blue are contained in Volume Two.

If the end cap and barrel coupling are knurled around the circumference of the exposed portions as shown in the pictures, it not only improves the appearance but also provides a gripping surface to grasp with the fingers when tightening or loosening these parts.



Common metal window screen can be salvaged from buildings, is available from hardware and building supply stores. Can be cut with sheet metal shears.



Metal screen is cut to proper width, using sleeve as guide.

The silencer is initially assembled by screwing the barrel coupling in place on the end of the pistol barrel replacing the original muzzle cap. The sleeve is then threaded into the other side of the barrel coupling until it butts up against the pistol barrel muzzle. It is then locked in place with a set screw as shown.

A strip of metal screen wire just wide enough to fit between the barrel coupling and center bushing is wound tightly around the barrel until it fills the space between the barrel coupling and center bushing. The outside diameter of this screen roll should be such that the outer tube will just slip over it.

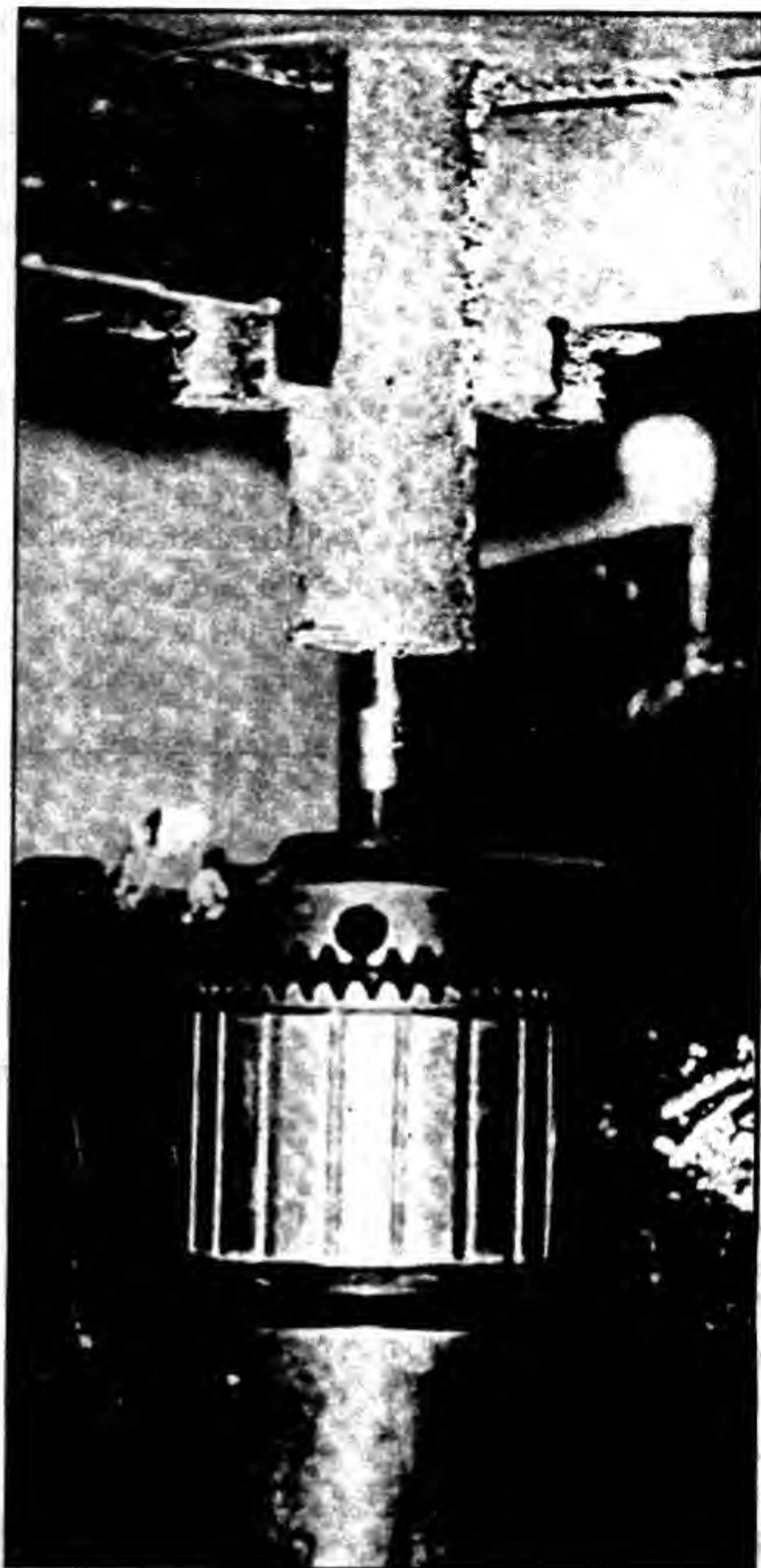
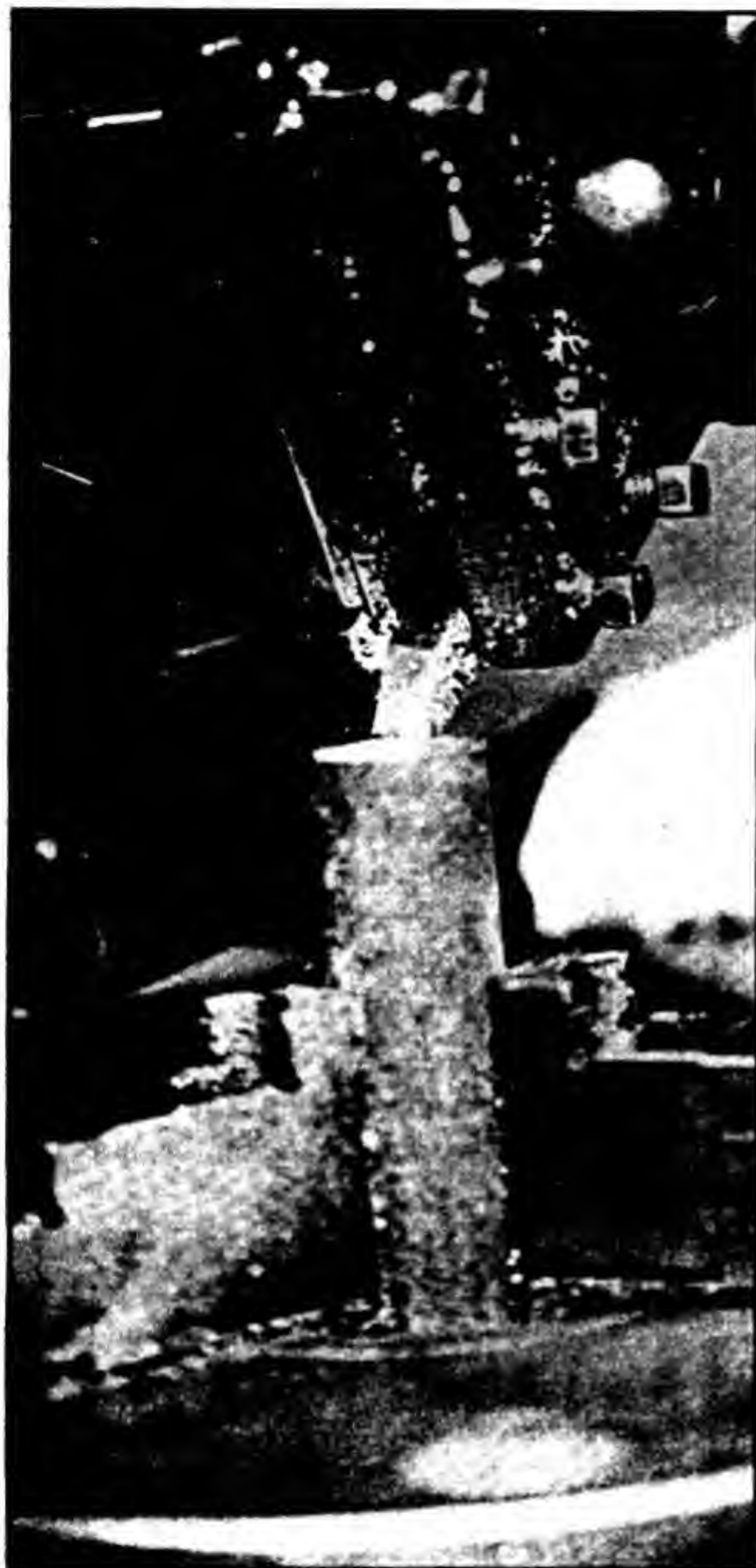
The front portion between the center bushing and muzzle cap should be filled loosely with a roll of fiber glass insulation, steel wool, or whatever other sound-absorbent material you deem appropriate. An acquaintance of mine, who experiments with items such as this, told me that "silly putty" works well for this; but I have always used the rolled fiber glass as shown.

To assemble, the fiberglass strip is rolled loosely around the sleeve and the outer tube slid over it back to the center coupling, at which time the screen is wound around the sleeve and the outer tube pushed over it and to the rear until it contacts the shoulder of the barrel coupling. The end cap is now screwed onto the end of the sleeve, the shoulder supporting and securing the outer tube in place.

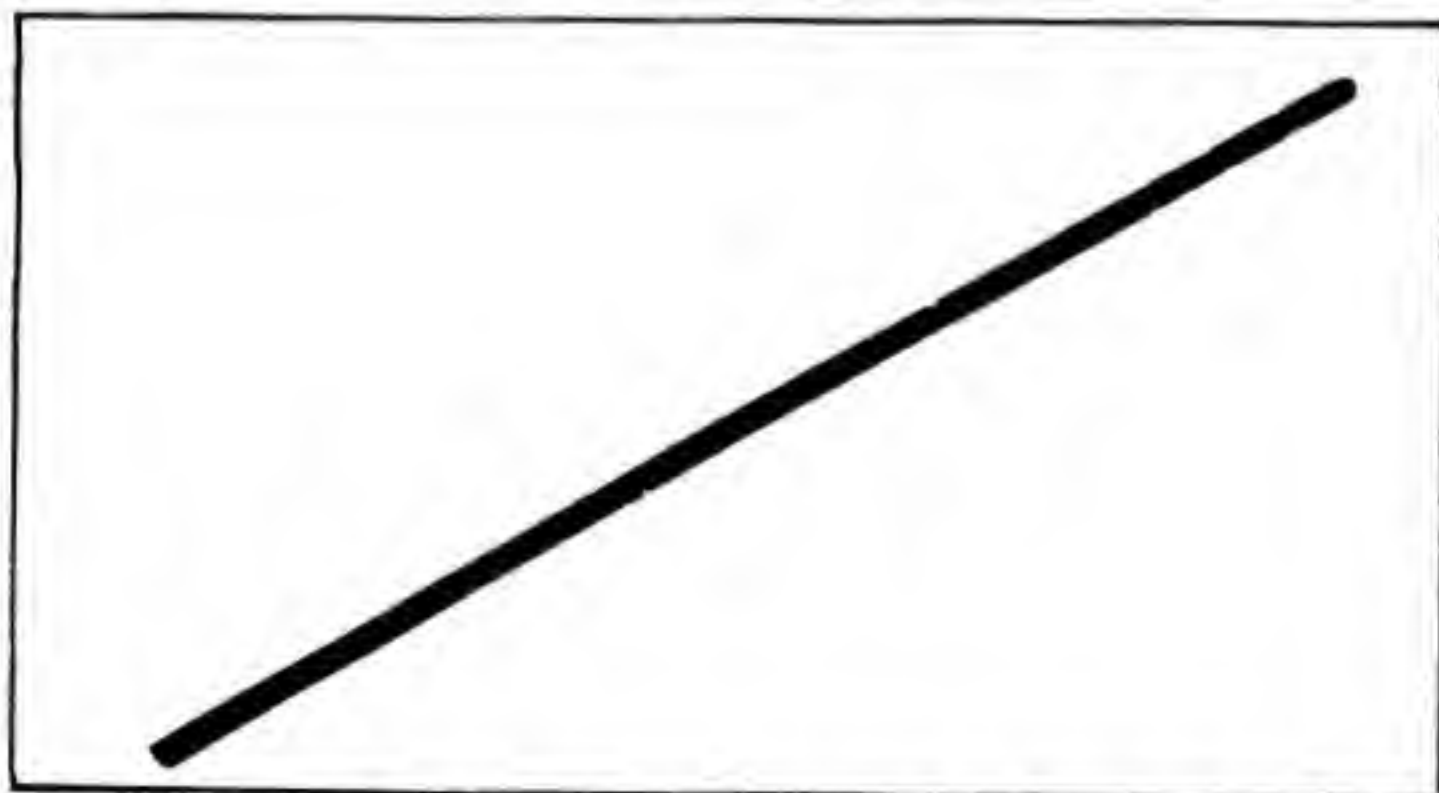
The unit is now ready to test fire. As with any firearm being tested for the first time, precautions should be taken to avoid injury in the event that the unit should blow apart.

At least, wear a heavy glove and hold the gun around the corner of a building or around a tree, or best of all, under a heavy board so that your face and body will be protected in case parts and pieces do start flying.

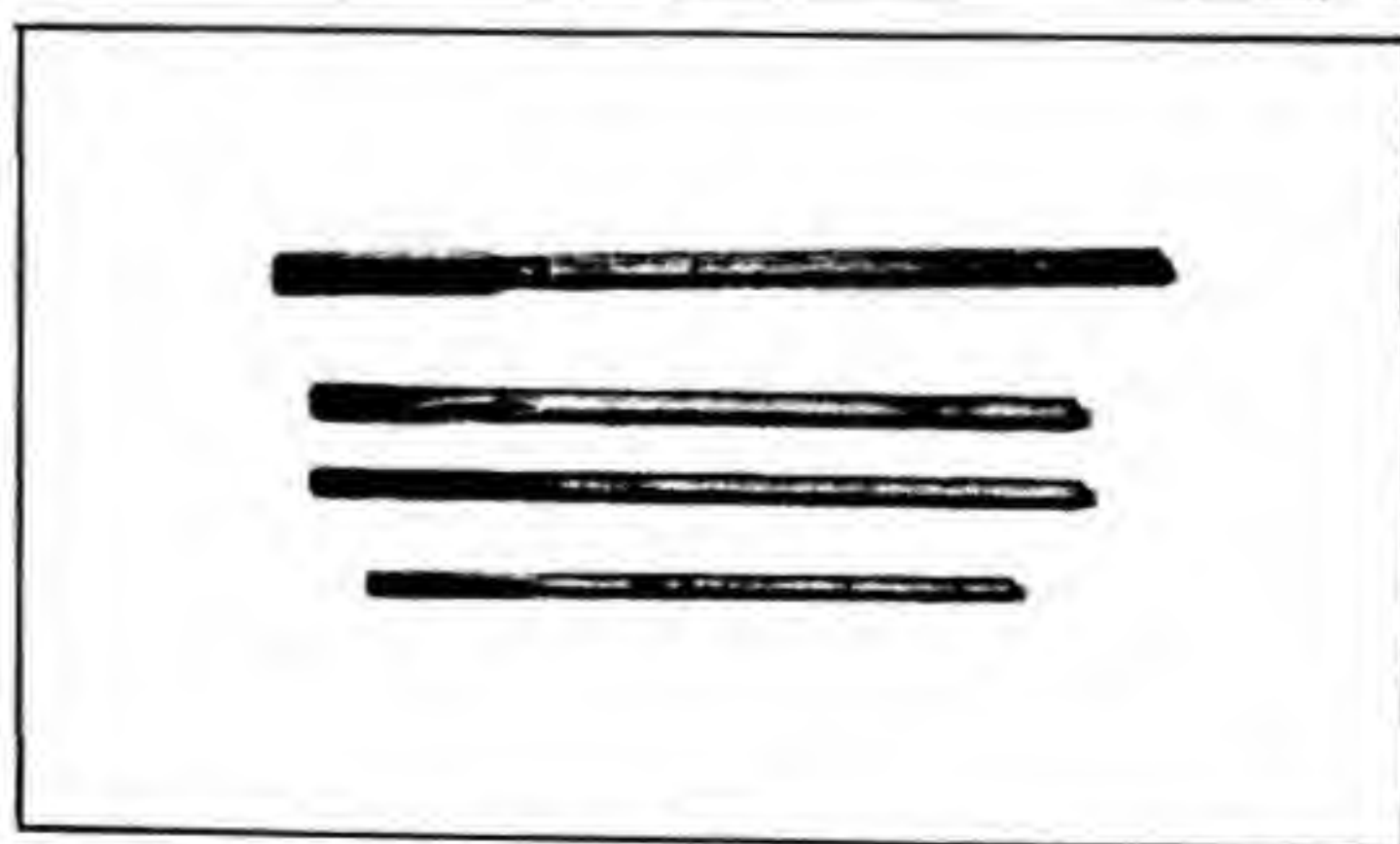
End of automobile axle is faced square before drilling.



Hole is started with center drill.

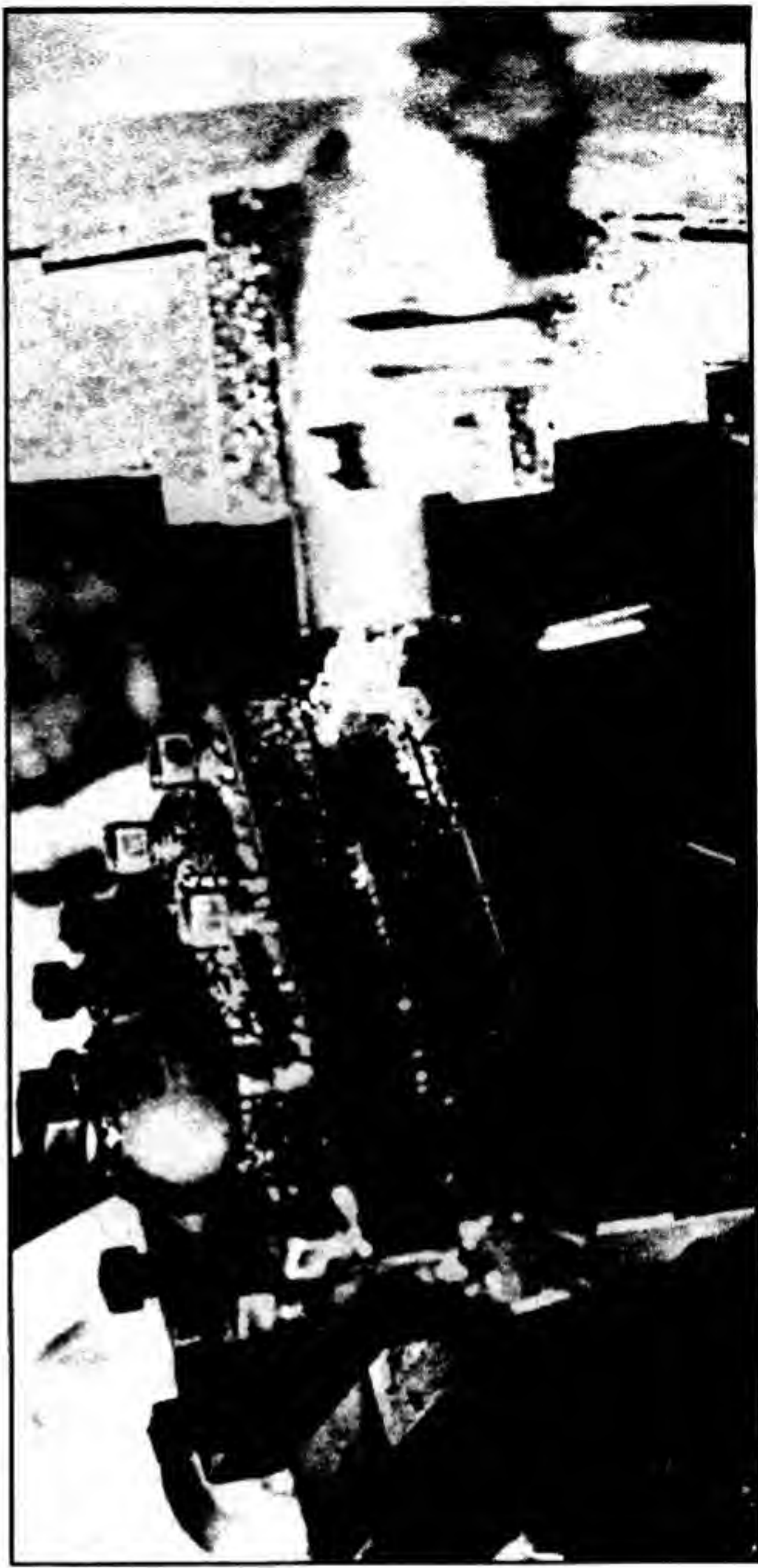


Long shank drill for boring sleeve to larger diameter can be made by turning down drill shank and boring an extension to a slip fit over the drill shank. Silver solder in place.

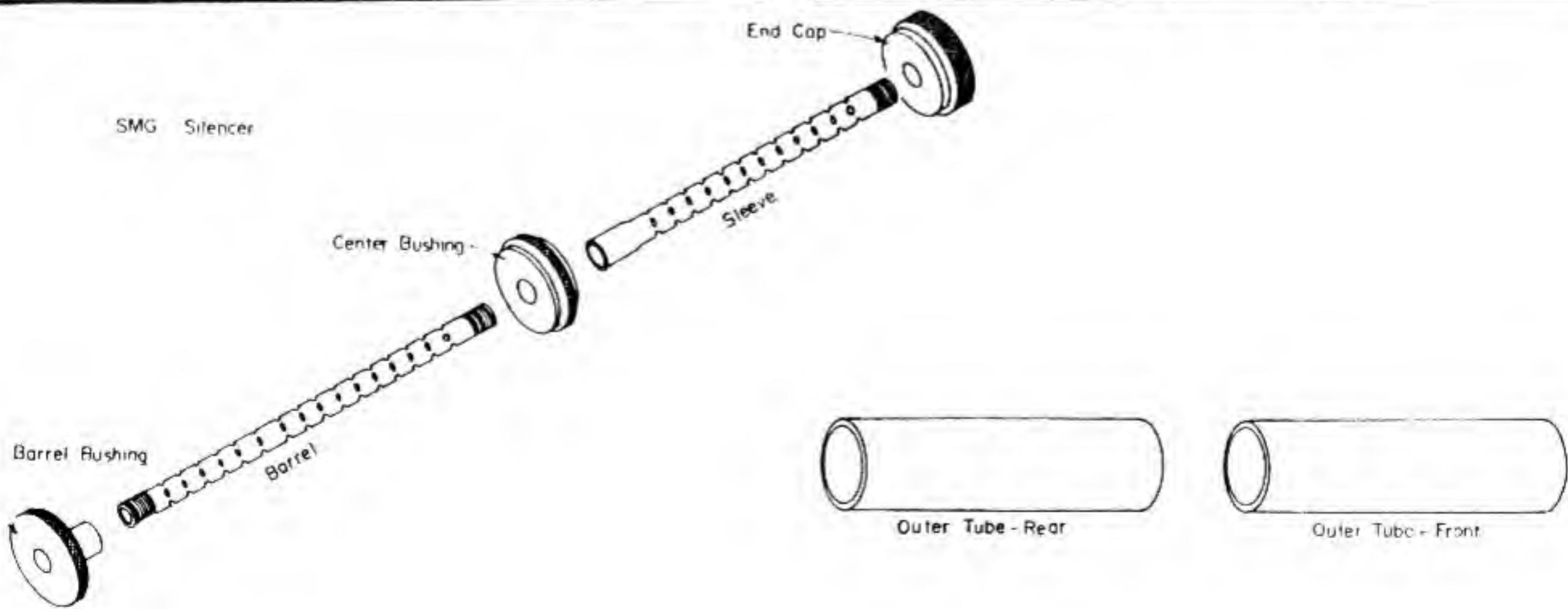


Hand and chucking reamers can be had in just about any size desired. Available from machine tool supply houses.

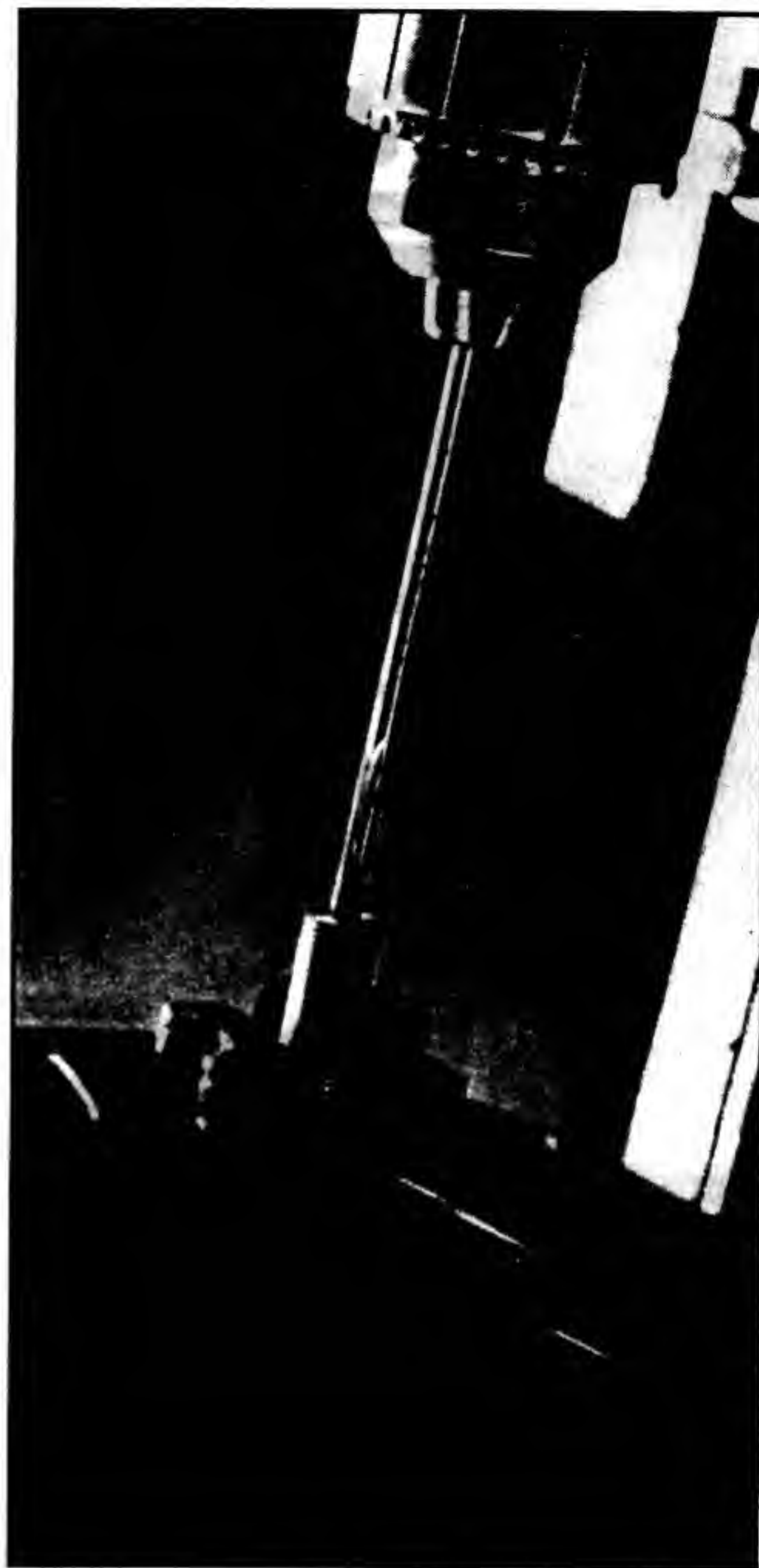
Hole is drilled to required depth using proper size drill. Smoother, more accurate holes result in most instances if a smaller drill is used first followed by the larger full size drill.



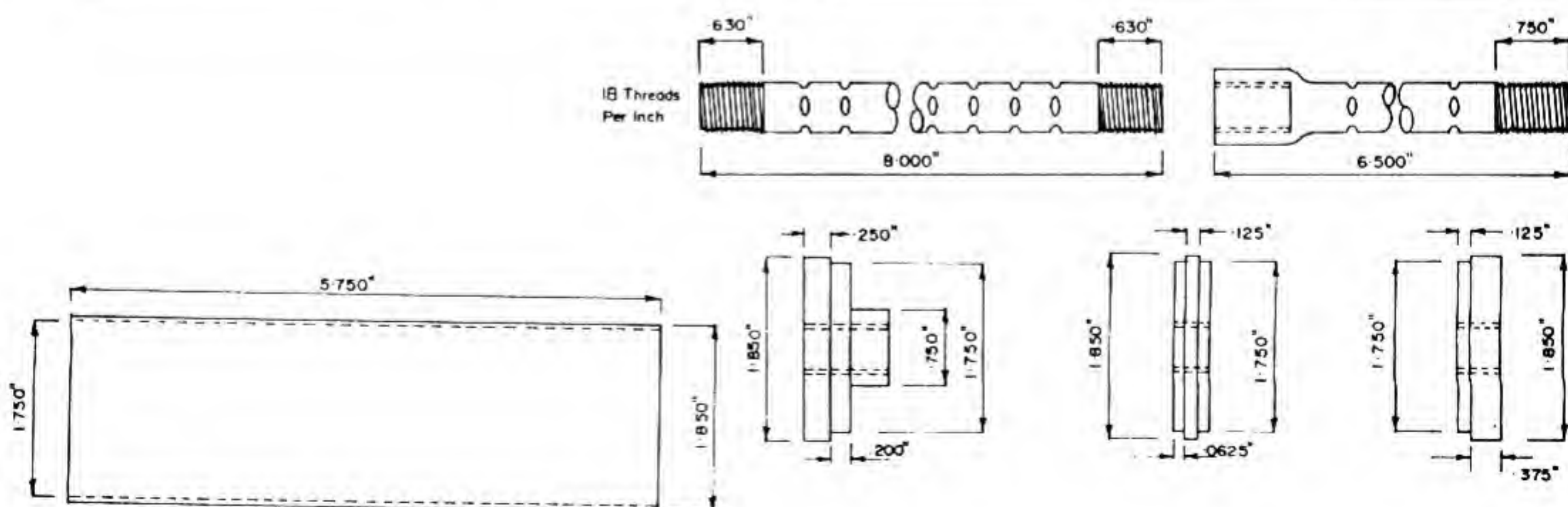
Tubing is cut to proper length and faced square on ends.



Ends of sleeve are threaded to receive barrel connector and muzzle cap.



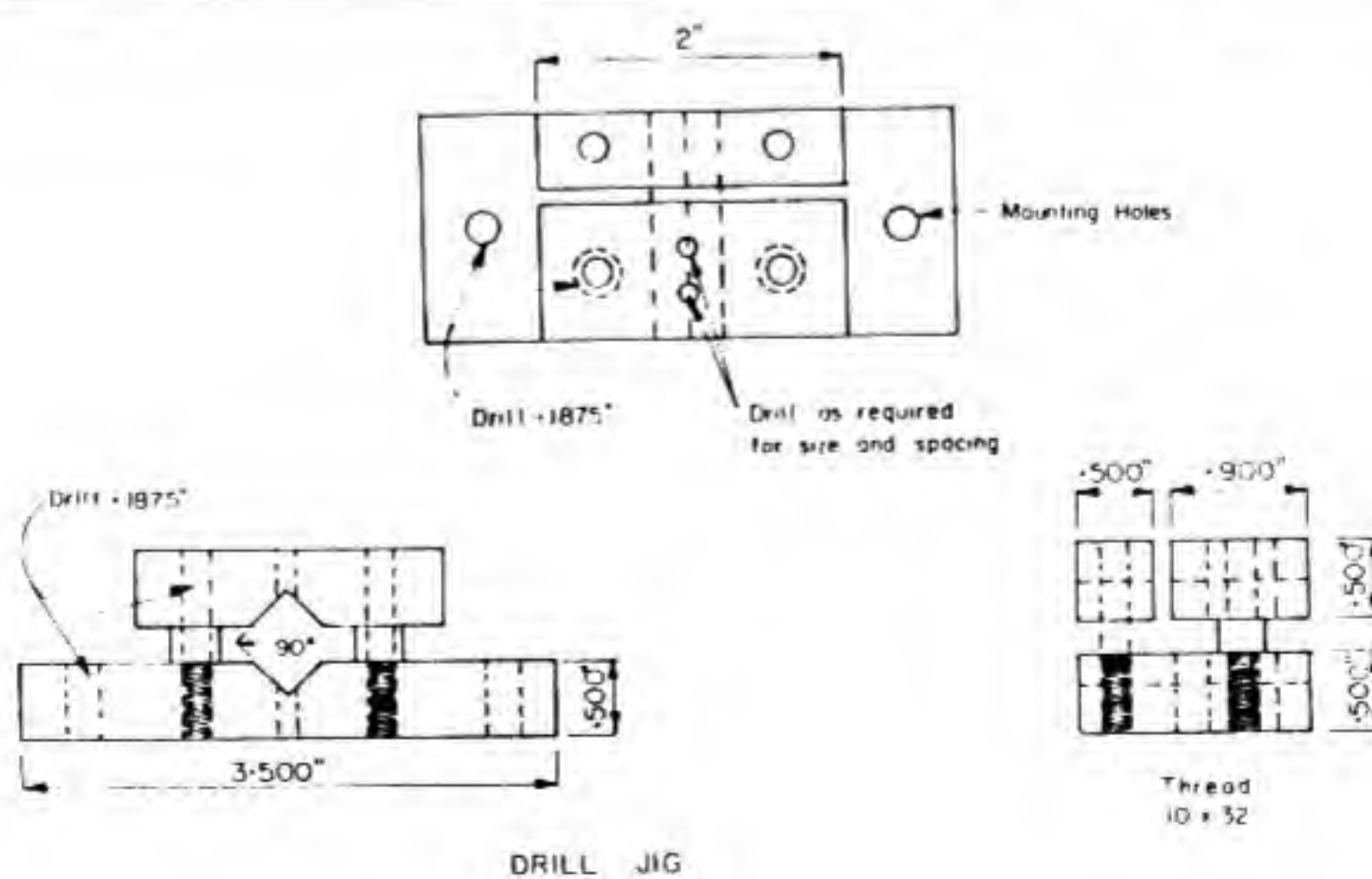
Set up to ream sleeve to .228 I.D. Reamer is fed in slowly, cleaned frequently, plenty of lubricant is used.



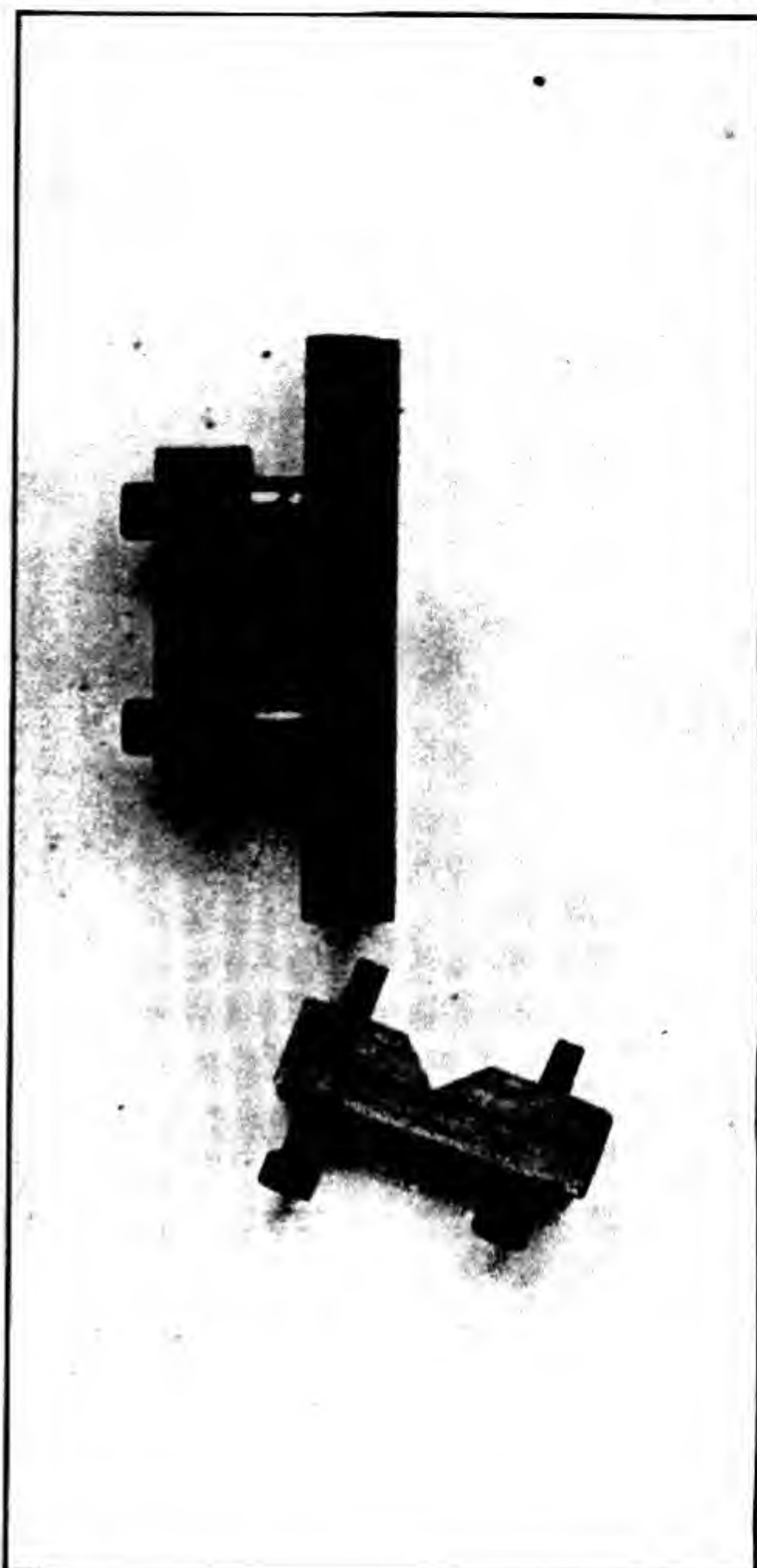
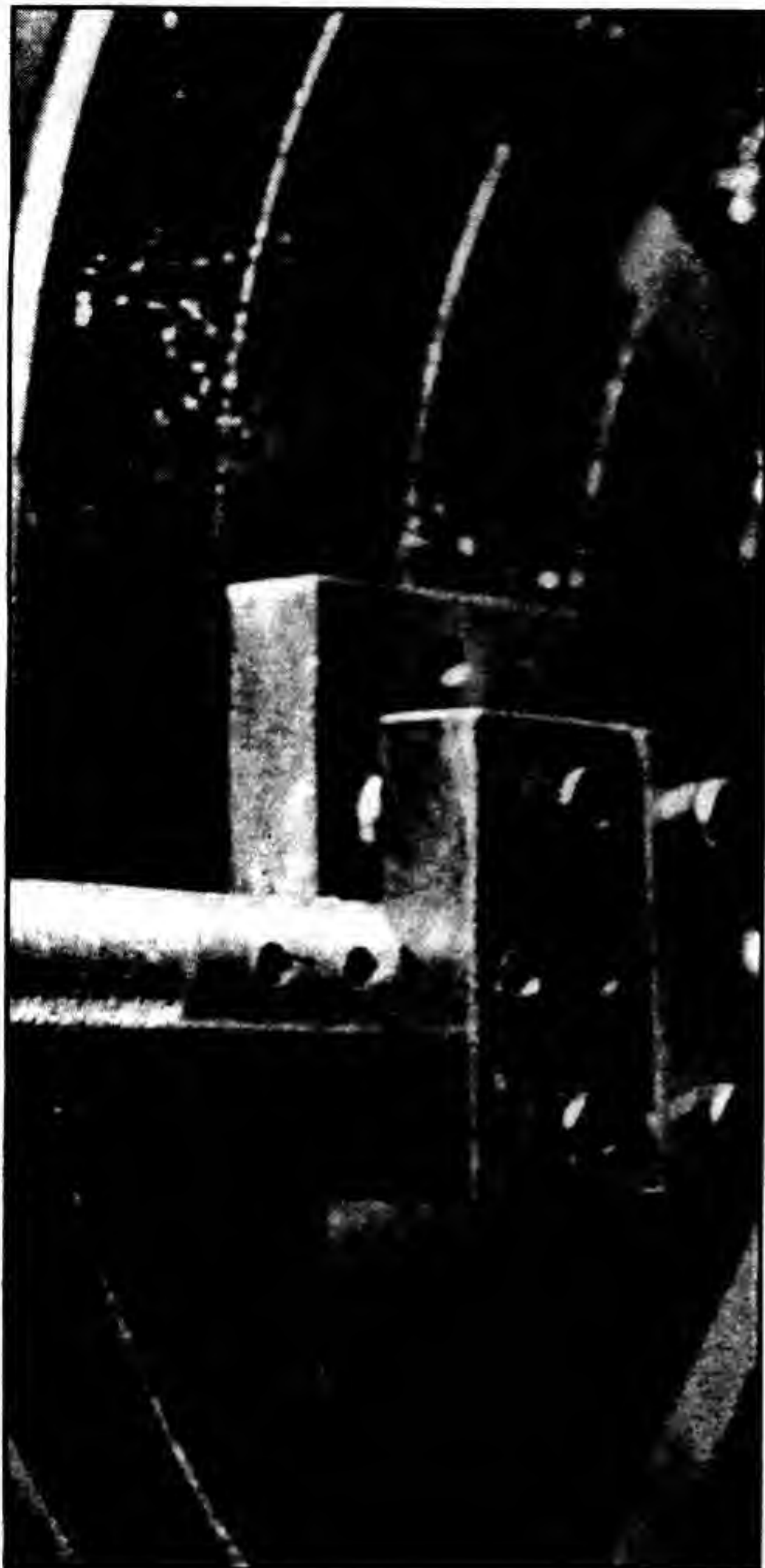
Sleeve is reamed to proper diameter, preferably after vent holes are drilled.



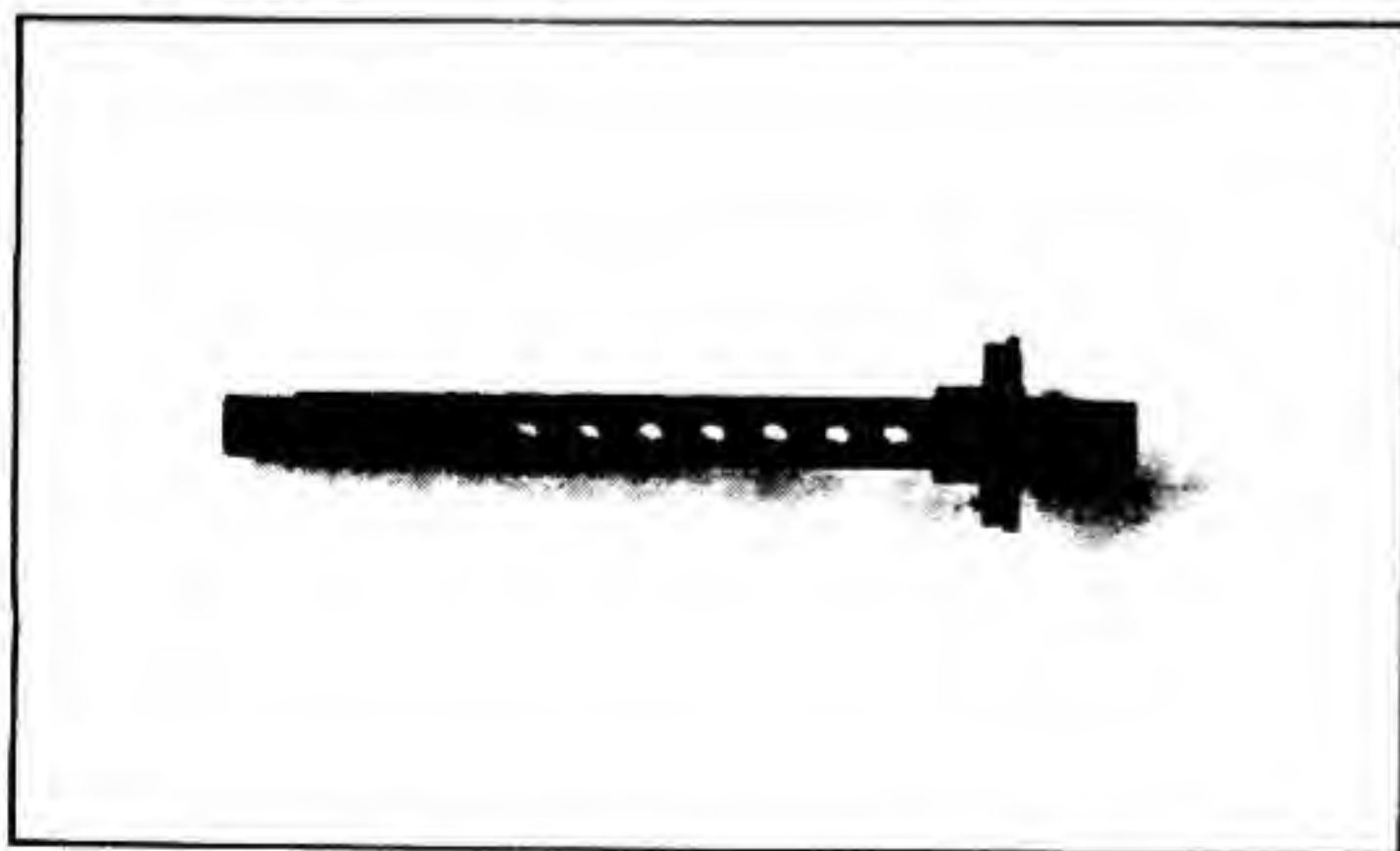
Jig to locate and drill vent holes in silencer sleeve.



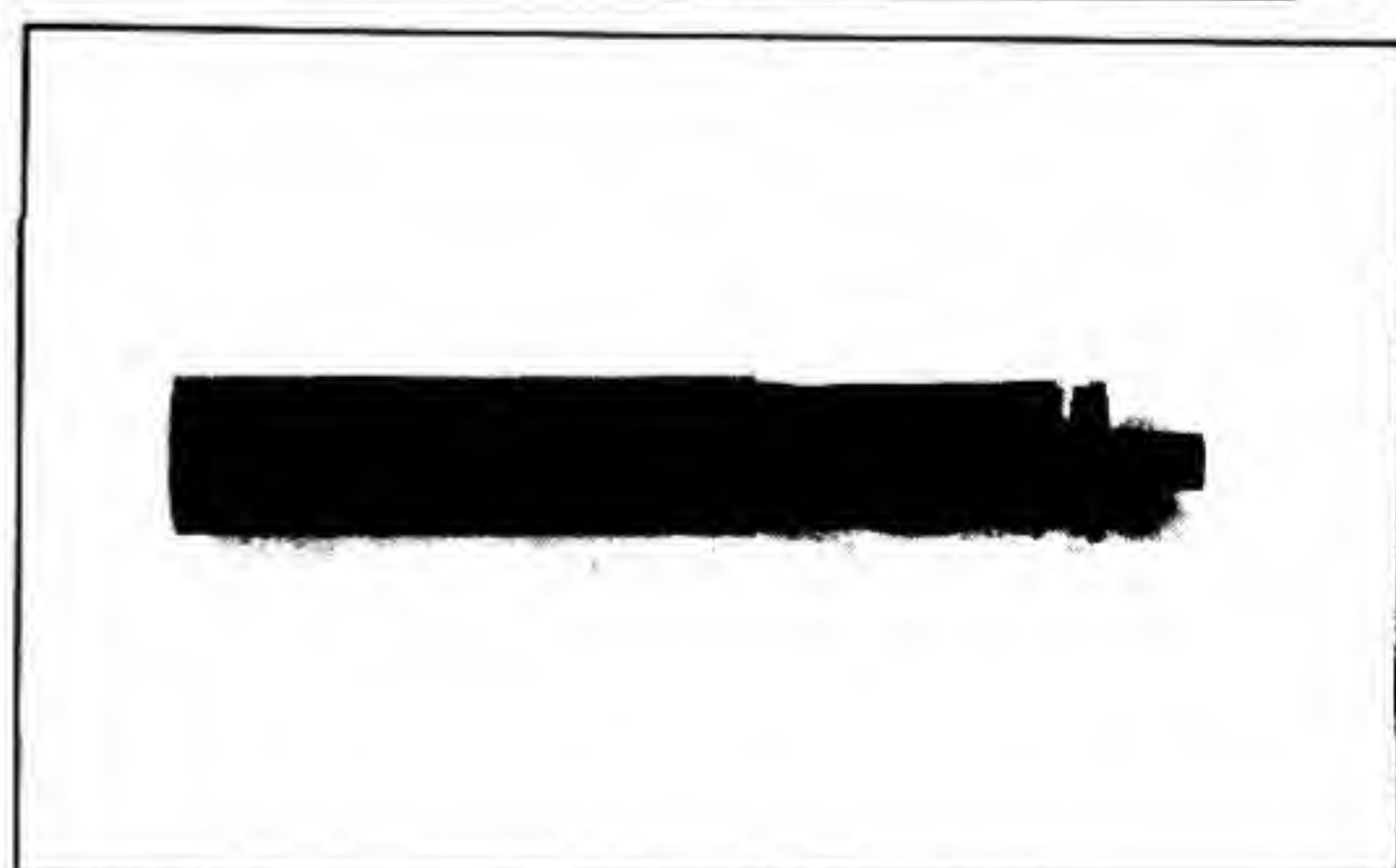
Jig shown with sleeve in place.



End view of drill jig with clamp removed. Vee ways can be cut with file if no milling machine is available.

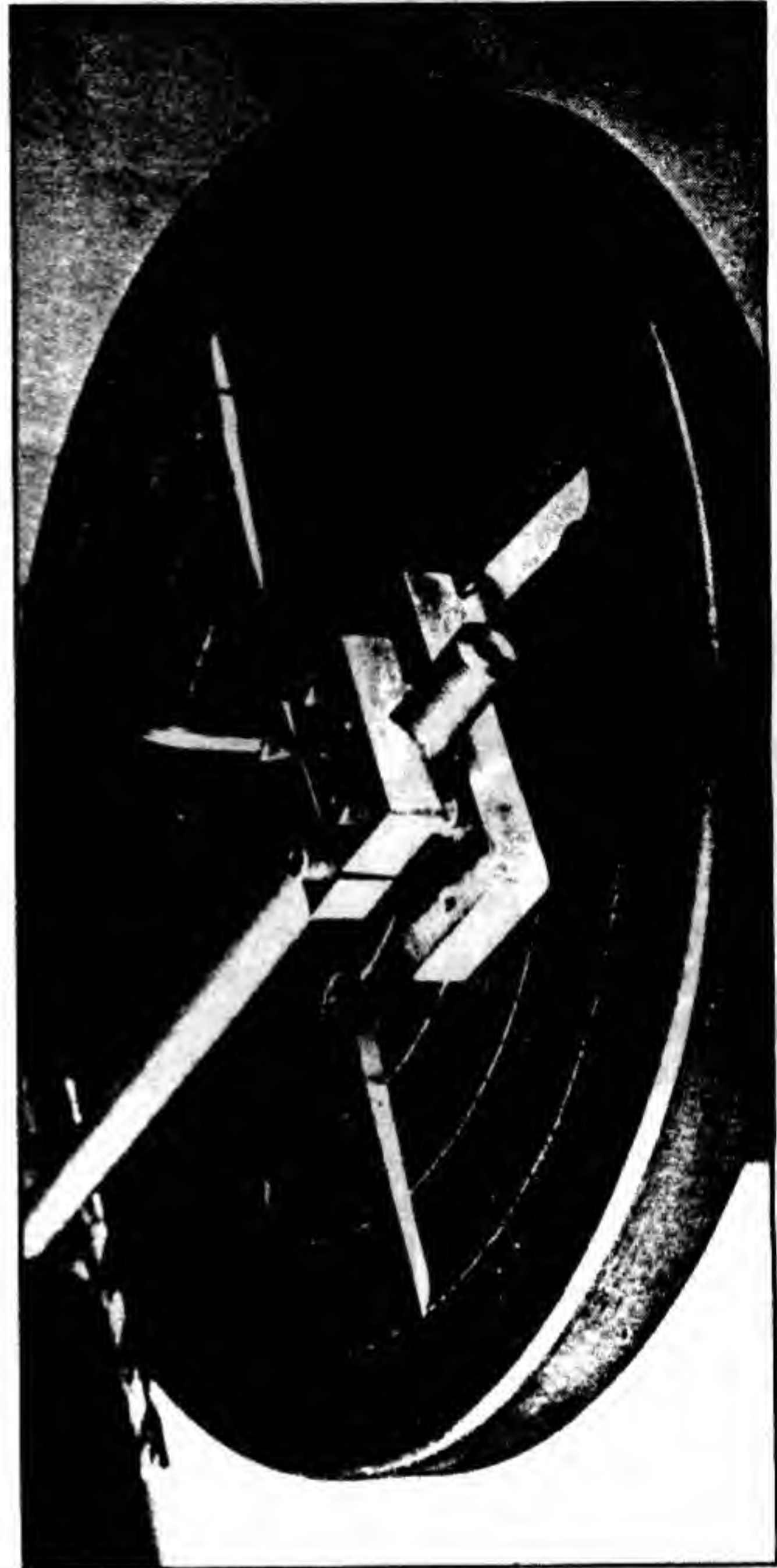
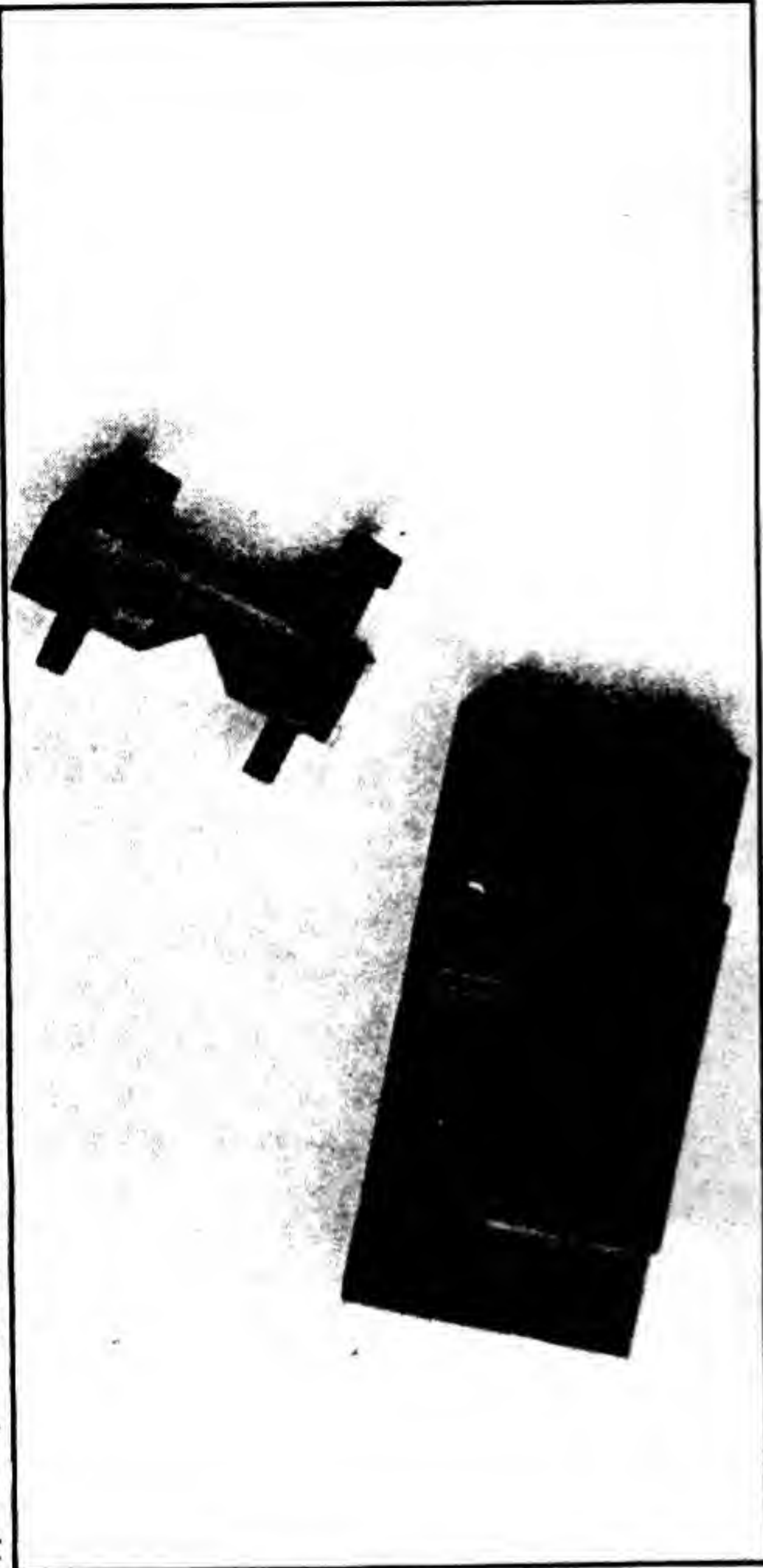


Assembly begins by installing barrel bushing on barrel.



Screen roll is placed around barrel and rear outer tube pushed over it.

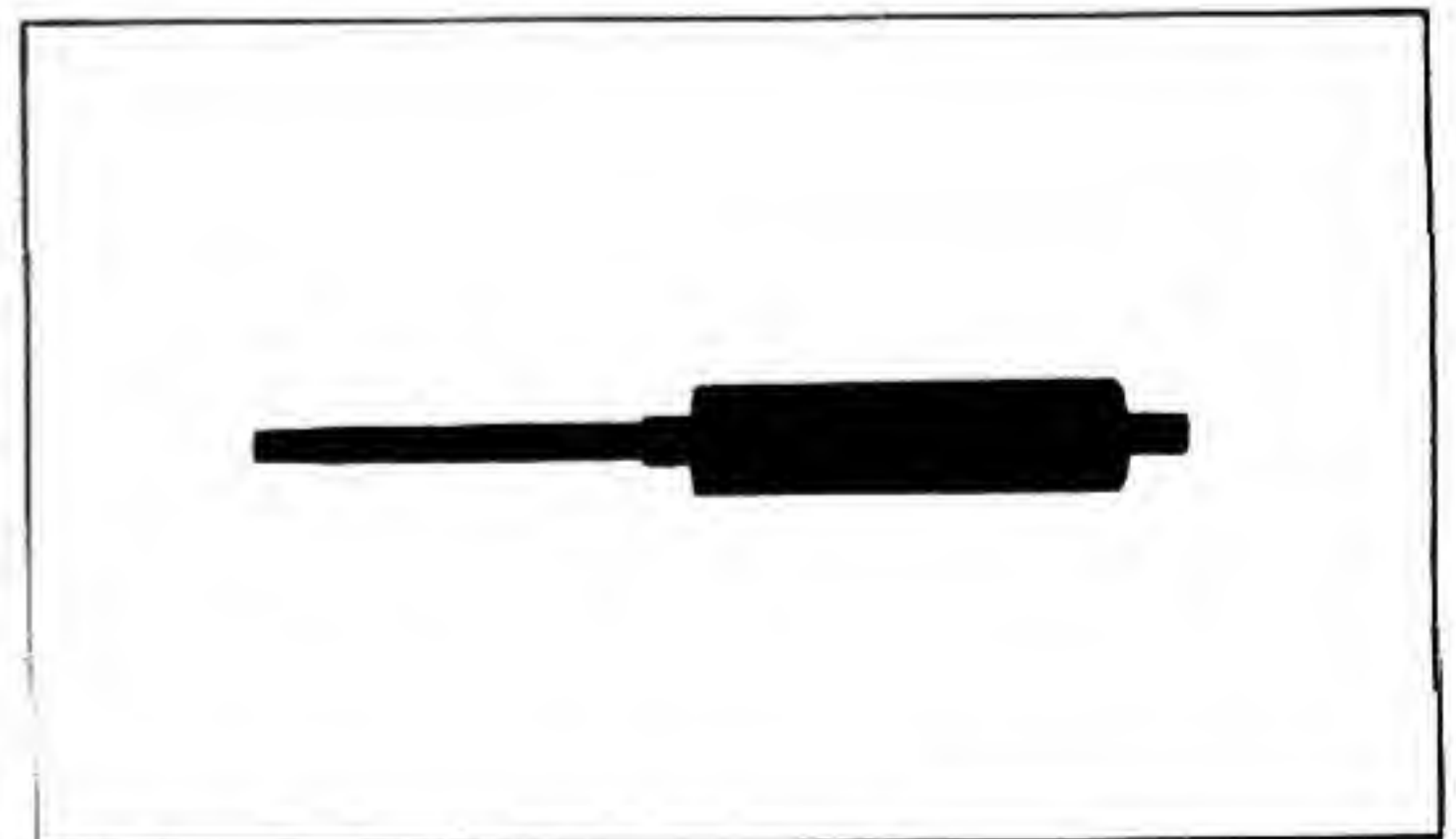
Top view of drill jig. Clamp removed. The holes near the outside edges are mounting holes to allow the jig to be fastened to something solid for use with a hand drill.



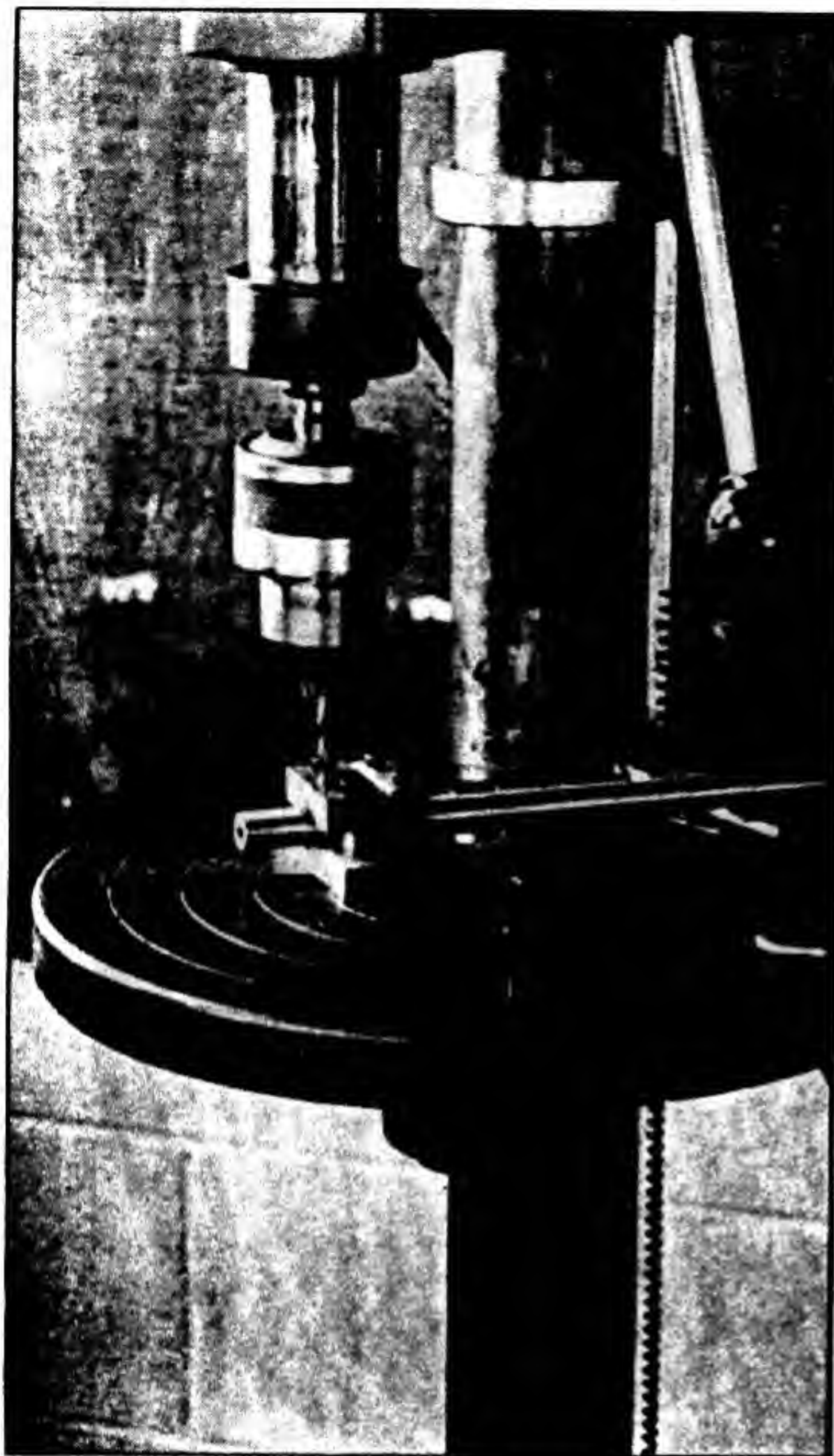
Drill jig ready for use with drill press.

The sub machine gun silencer is made pretty much the same way as the pistol silencer except that a barrel bushing is made to screw onto the rear end of the barrel in place of the barrel lock nut and is locked in place with a set screw.

A barrel coupling is made to screw on to the end of the barrel which must be threaded to receive it and a sleeve then screwed into the front side of the barrel coupling until it butts against the muzzle end of the barrel. The muzzle cap, in turn, screws onto the end of the sleeve supporting and securing the outer tubes in place in the same fashion as the pistol installation.



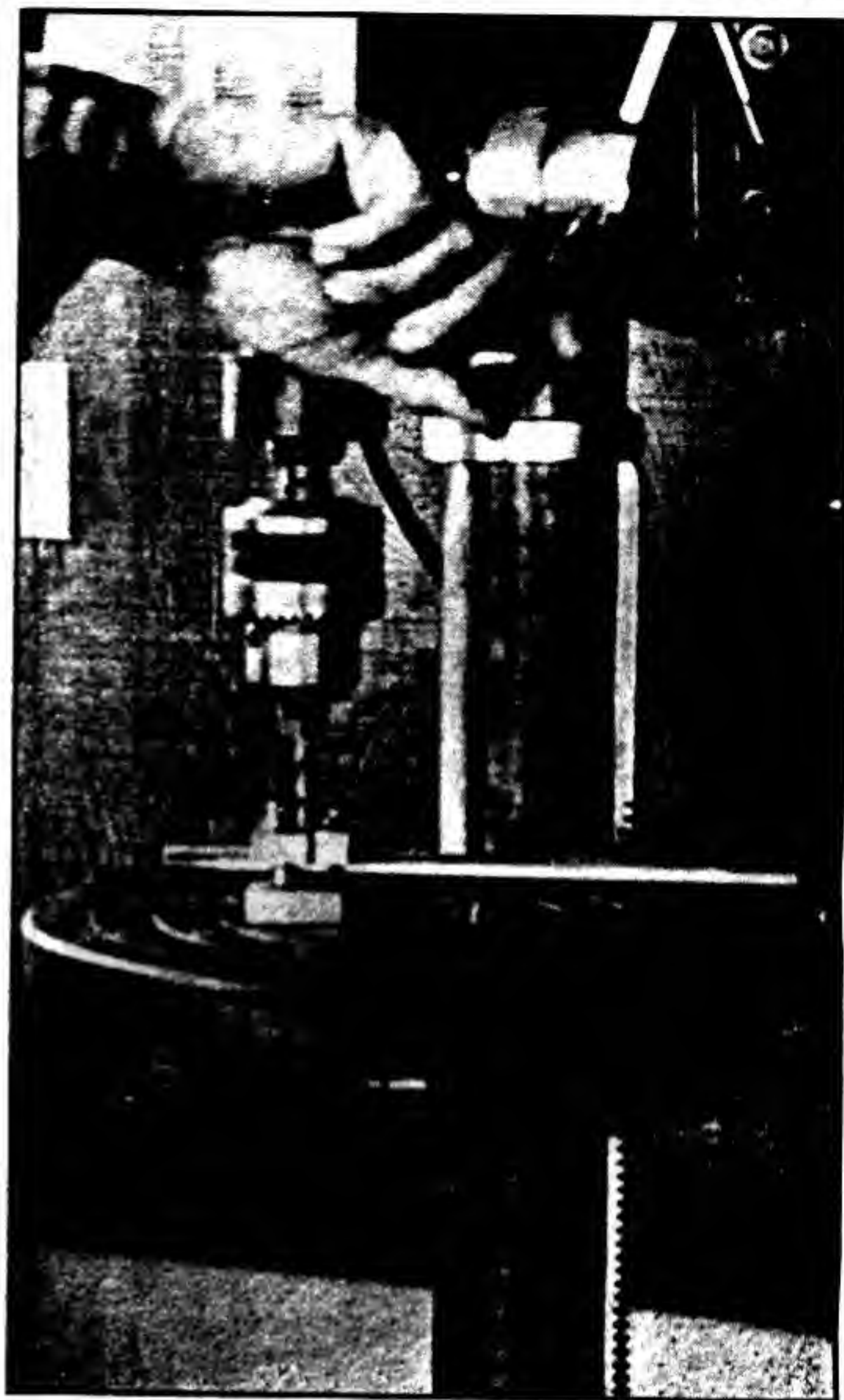
Coupling and sleeve are then connected to barrel.



The first hole in the process of drilling. Hole is drilled entirely through sleeve thereby producing both top and bottom row at the same time, with but a single operation.

The sleeve, in this instance, is five inches long. Here again, a shot-out or discarded military rifle barrel section can be used. The inside diameter, assuming the 9 mm Luger or Parabellum cartridge is used, should be .358"-.362". Four parallel rows of 5/16" (.3125") holes, spaced 1/2" center to center, should be drilled before the finished inside diameter is reamed and lapped.

Four rows of 5/16" holes spaced 1/2" apart are also drilled into the barrel. Actually, only two rows are required (I should have mentioned this earlier) since the drill can go in at the top, through the bore, and out the

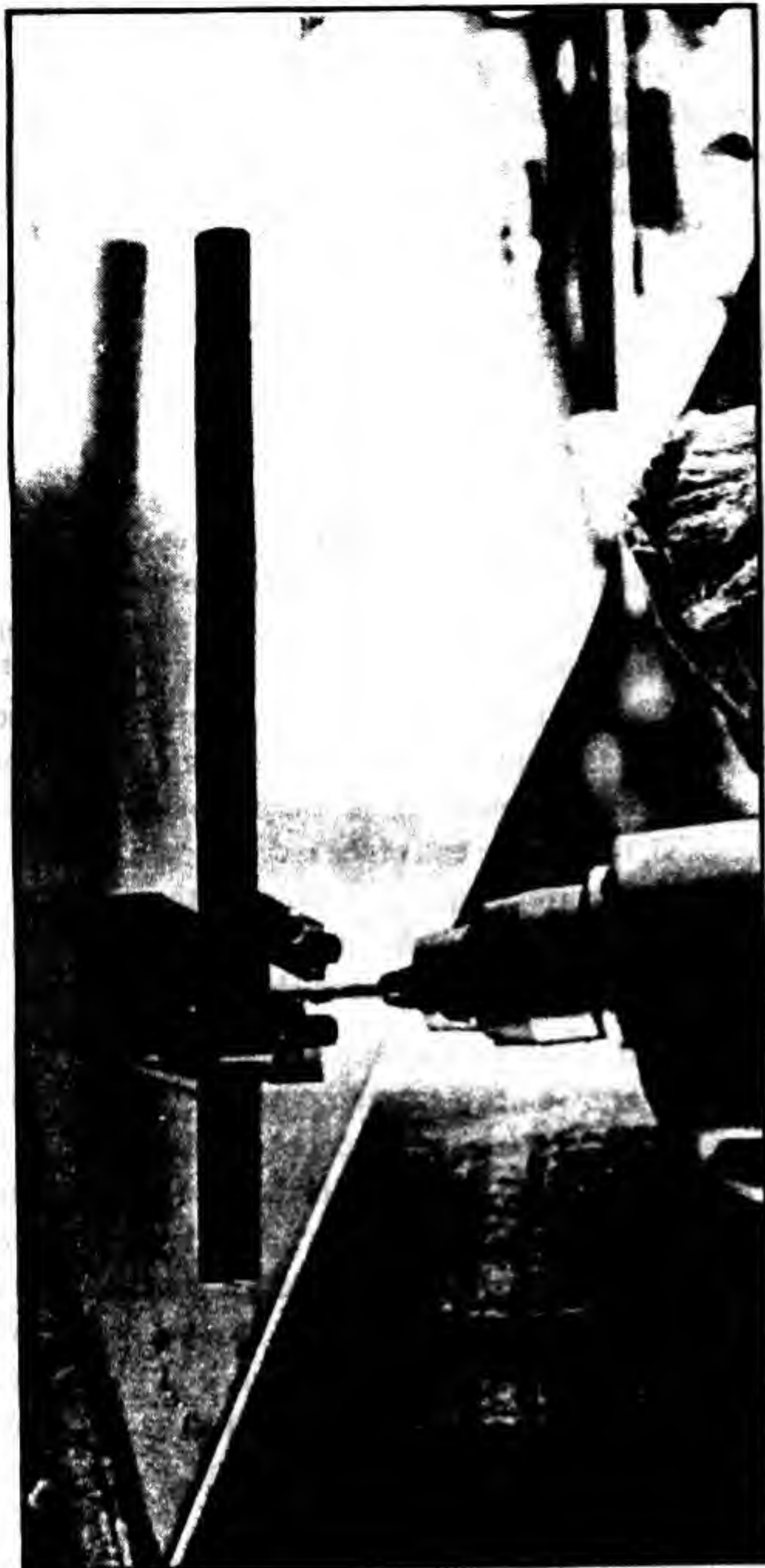


After the first two holes are drilled, the clamp is loosened, the sleeve slid forward until the last hole drilled is in line with the first hole in the jig, a locating pin inserted to keep it aligned and the clamp retightened. Another hole can now be drilled through the second hole in the jig. This process is repeated until the operation is completed.



Insulation is then rolled around the sleeve and front outer tube pushed over it.

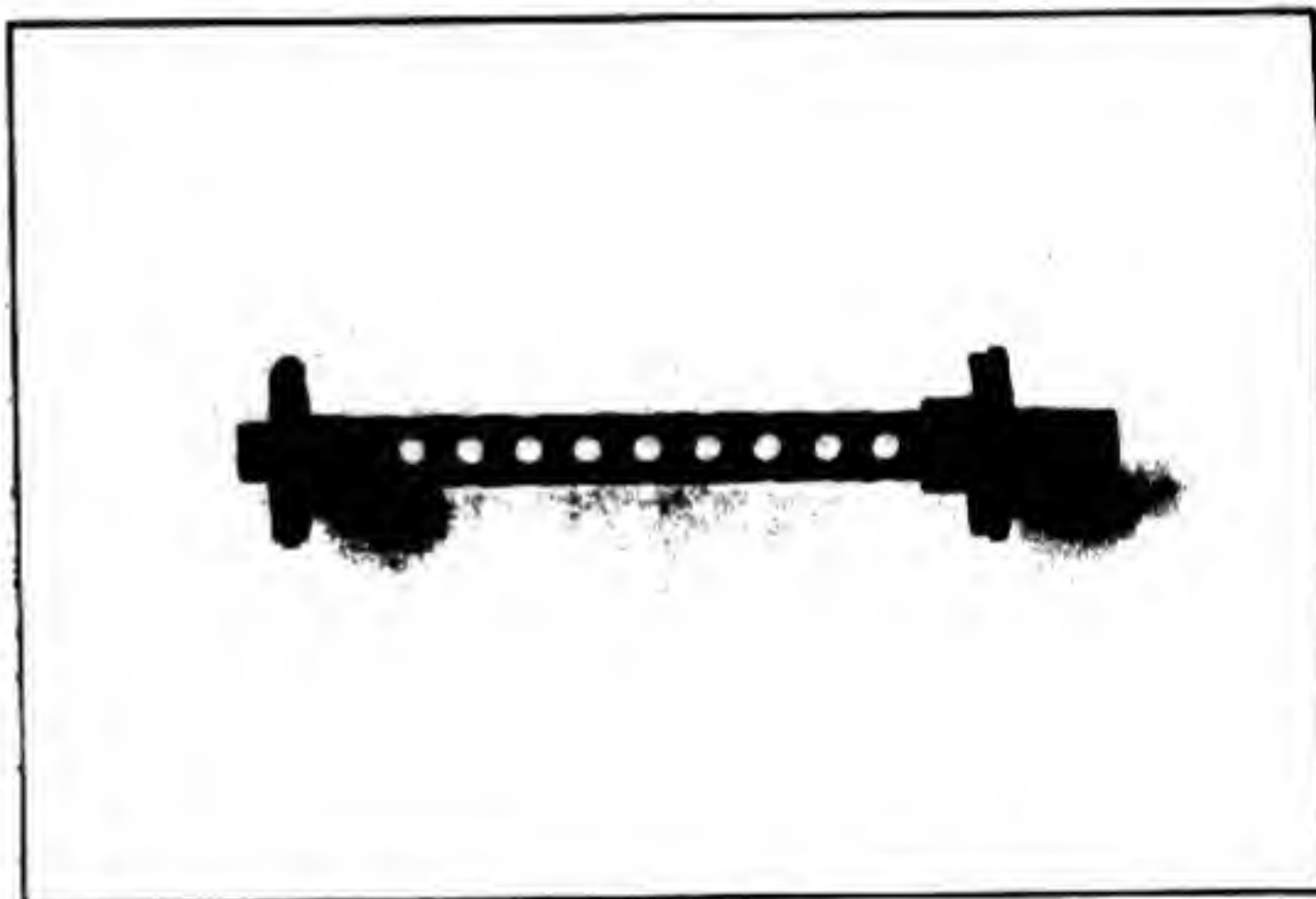
The drill jig showing use with a hand drill, the jig should be bolted to something solid when used in this manner.



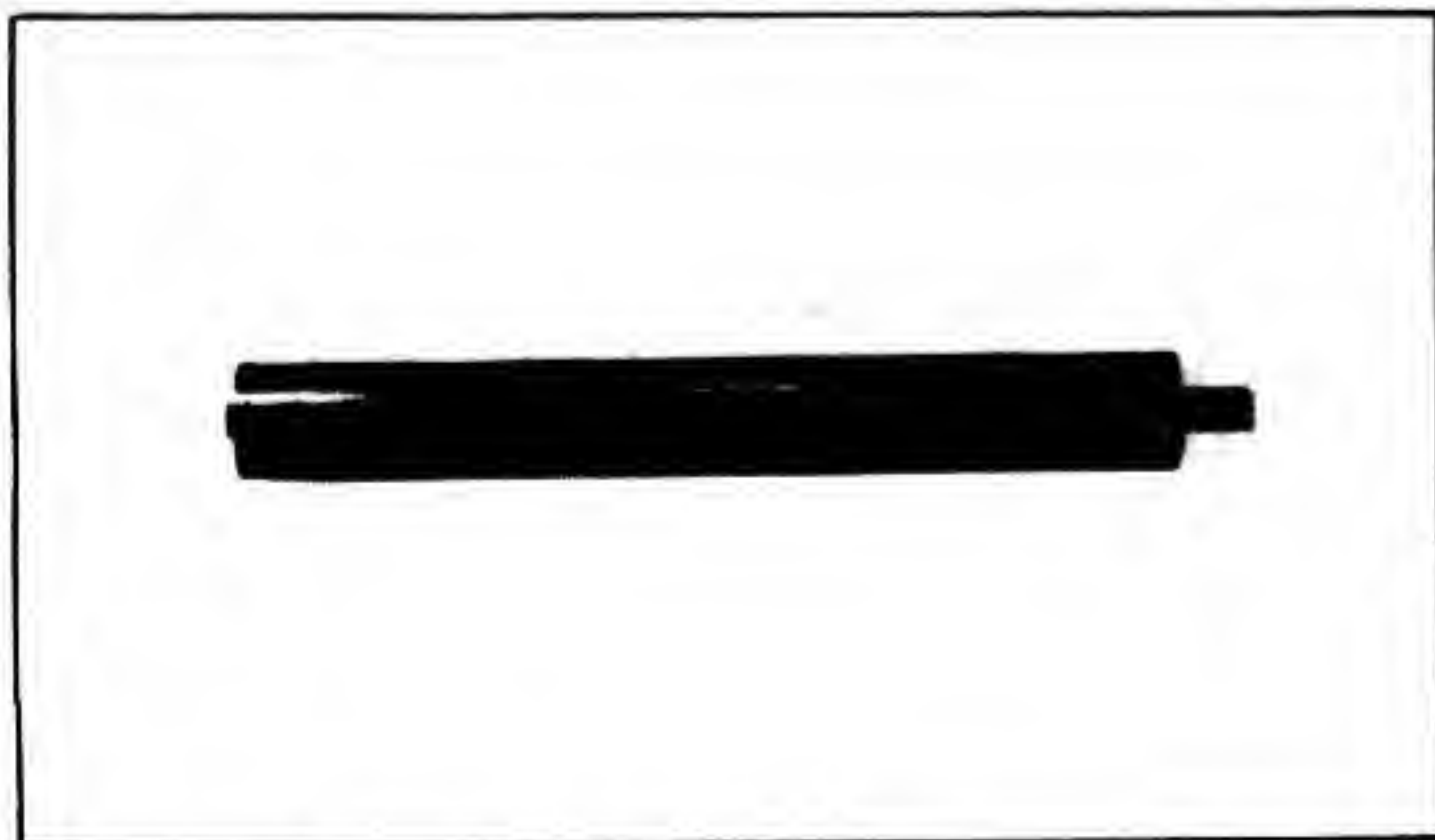
bottom side, thereby drilling two holes with but a single operation. These holes should begin approximately 1 1/2" forward of the chamber and end just behind the barrel coupling.

Burrs will be thrown up inside the bore by the drill's entry and exit into and out of the bore. Therefore, it will be necessary to lap the rifled portion after the ports are drilled by casting a lead lap around a steel rod as described in the barrel making chapter of Volume One of this series. The occurrence of these burrs can be greatly reduced by pouring the bore full of molten lead before the ports are drilled and driving the lead core out with a close-fitting rod after the drilling is complete.

Drilling with a hand drill can be made much easier and more precise by constructing a simple drill jig as shown in the drawing and photographs. This jig is simply a pair of Vee blocks bolted together, with a pair of holes located with the same spacing as the holes you intend to drill intersecting the center line of the top Vee block.

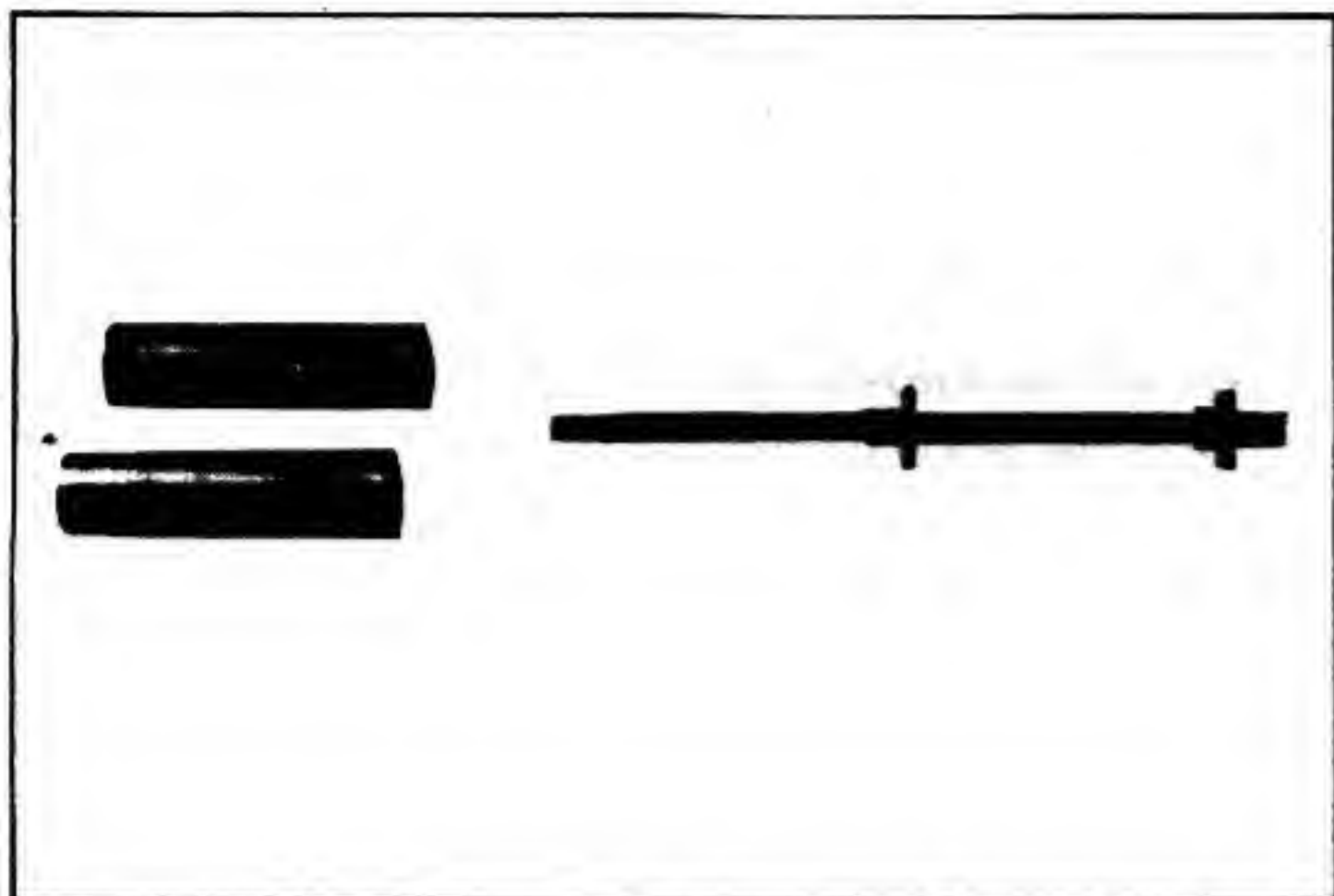


SMG Barrel with barrel bushing and coupling in place.



The assembled silencer ready for installation.

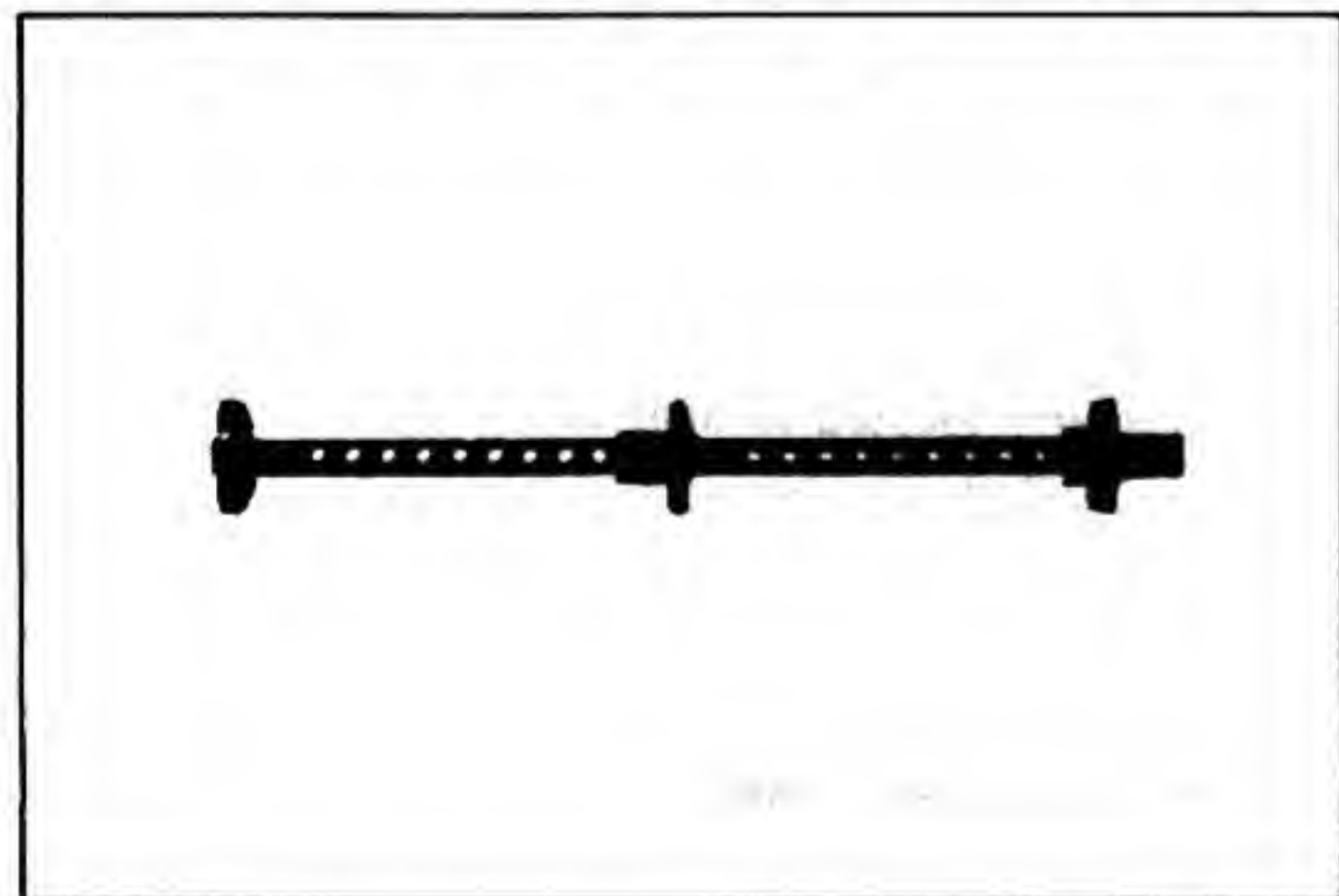
In practice, the sleeve in which the holes are to be drilled is clamped between your Vee blocks with the drill holes properly located to drill the first two holes. After these are drilled, the sleeve is slid forward or back until only one hole in the sleeve is lined up with the front hole in the jig. A locating pin of the same size as the drilled hole is pushed through both the jig opening, thus locating the holes the same exact distance apart and precisely in line. This process is repeated, one hole at a time, until the row is completed, at which time the sleeve is rotated 90 degrees and the process repeated.



SMG silencer components: outer tubes and muzzle cap not installed.

Discarded shock absorbers are again the source of material for the outer tubes. This time the outside housing of two shocks are used (two outer tubes are used) by cutting to the proper length and facing the ends square smooth. The ones I used had an inside diameter of 1.750" and an outside diameter of 1.850". Here again, if the tubes that you use are of a slightly different size, the coupling bushing and end cap diameter must be adjusted accordingly.

This silencer is assembled practically the same way as the pistol silencer, except that after the barrel bushing is secured in place on the chamber end of the barrel, a tightly wound roll of screen is placed around the barrel and the rear outer tube slipped over it, the rear end slipping over and against the shoulders of the barrel bushing. The barrel coupling is now screwed onto the end of the barrel, thus securing the outer tube in place. The sleeve is now screwed into the forward end of the barrel coupling, a roll



SMG barrel and sleeve assembled with bushing, coupling and muzzle cap in place.

of fiber glass insulation wound tightly around it, and the front outer tube slipped over it. The end cap is now screwed tightly in place, which in turn locates and holds the outer tube between the shoulders on the barrel coupling and the end cap.

The unit is now ready to test fire, using the same precautions described earlier.

While the designs shown here are meant to be used on my own weapons designs, there is no reason why they cannot be adapted to other suitable weapons. On rifles and pistols where most, or all, of the barrel is exposed, the vent holes can be drilled in the barrel proper, a rear and center bushing installed on the barrel, and the muzzle end of the barrel threaded to receive an end cap which would secure the entire assembly in place. Where an installation is desired on a weapon which has the barrel partly or totally enclosed, the muzzle end of the barrel would be threaded to receive a barrel coupling as shown in the pistol design. The thread diameter might have to be slightly different; otherwise, the same dimensions should suffice.

We read about and see little sketches, etc., of silencers clamped and sometimes even taped to rifle and pistol barrels, made from tin cans, copper tubing, and the like. These are seldom, if ever, satisfactory. Such a flimsy, haphazard fabrication is usually only a figment of someone's imagination and has no practical value. While it is true that the designs shown here require a little bit of machine work and perhaps a day's time to build one, the result, if properly done, will be a sturdy, rigid assembly that will remain in line with the bore and not shoot loose. Then, too, these units can be repacked with new screen and insulation rolls time after time, thus restoring them to new condition over and over again. It would seem to me that the extra effort required is worthwhile.

In closing, let me say once more that unless you plan to assassinate someone, you very probably don't have any business with either of the units described here. The Federal Government has a number of penitentiaries scattered around the country just waiting for people that they catch with something like what is described in this book. Don't let them catch you.

Bill Holmes
Fayetteville, Arkansas 1980